

GREENPEACE

THE MARKET MOVES TO NON-GM ANIMAL FEED

NON-GM DEMAND IS GROWING & NON-GM SUPPLY IS GROWING TO MEET DEMAND

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October 2001

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The market moves to non-GM animal feed

News Release

Strictly embargoed until: 00:01 hours, Thursday 20

September 2001

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Consumer concerns over GM labelling

New research¹ released today by the National Consumer Council shows clear consumer support for the 'right to know' whether food is from genetically modified (GM) crops or is the produce of animals fed GM feed. Almost two-thirds (64%) thought it was important that food containing GM ingredients is labelled and over three-quarters (79%) thought that meat and other products from animals fed GM feed should be labelled.

This week, the Council urged the Food Standards Agency (FSA) to support the European Commission's proposals² to extend and strengthen GM labelling. Yesterday (Wed 19th), the FSA board met to discuss their views on the plans. The proposals cover the approval, labelling and traceability of GM foods and threshold levels for accidental contamination of food by GM crops. They will also extend, for the first time, to animal feed and ingredients made from GM material but in which the modified DNA has been destroyed during processing (known as GM derivatives).

Whilst welcoming the European plans, NCC is concerned that some of the proposals do not go far enough. For instance:

Threshold levels for the amount of accidental contamination by GM crops

The European Commission proposes to maintain a maximum threshold of 1% accidental GM contamination. NCC's survey shows zero contamination is the ideal: 42% of those who had a view expressed this preference. NCC recognises that zero contamination may not be technically

possible but believes that, as detection methods and monitoring systems improve, the 1% threshold should be reviewed and preferably lowered.

Allowing small amounts of accidental contamination by some GM crops, which have not been fully approved for use in the EU

It is worrying that the EU proposes to allow small levels of accidental contamination of food by GM crops and ingredients that are **not yet fully approved** for use in EU countries. The Council recommends that all GM varieties should receive the same degree of assessment and approval otherwise consumer confidence could be undermined.

The lack of a requirement to label meat and other products from animals fed with GM feed

Although the EU proposals will, for the first time, extend GM labelling to animal feed, there are no immediate plans to label the products of animals fed GM feed. However, NCC's survey showed that almost 8 out of 10 (79%) of people thought that meat and other products from animals fed with GM feed should carry this information. The NCC is therefore urging the FSA to draw up legally-binding industry guidelines for the labelling of products indicating whether or not animals have been fed GM feed.

Interestingly, where **animals** were the issue, consumers' concerns seemed to be heightened. The number of consumers who thought that meat and other products from GM feed should be labelled (79%) is substantially higher than the number of people (64%) who were concerned about labelling food from GM **plants**. This may be due to the recent crises of BSE and foot-and-mouth disease which have heightened consumers' concerns about what animals are eating.

NCC Chairman, Deirdre Hutton, said:

"Our survey shows that consumers do care about whether or not their food contains GM ingredients and these plans to strengthen and extend GM labelling should help restore consumer confidence. We have spoken to the FSA and hope they will not only support the proposals but go even further so that consumers' concerns are fully addressed. We shall be lobbying European decision makers directly on these important issues.

"This is not consumers wanting 'ever more' information; our survey shows consumers have a clear sense of priorities for food labels. Their top three priorities

are information on nutritional value, allergic reactions and a full list of ingredients. GM comes next but, even so, a remarkably high number of people (33%) think such labelling is important."

The Council is also calling for clear liability legislation for GM in the event of damage to the environment, health or trade and more consumer involvement in the risk assessment process.

Notes to editors

1. A summary of the research is attached. The research was carried on behalf of NCC by RSGB Omnibus in August 2001. The survey was based on a representative sample of c.2000 adults.
2. NCC's response to the EU proposals can be downloaded from www.ncc.org.uk or telephone 020 7730 3469.

About the National Consumer Council

The purpose of the National Consumer Council is to make all consumers matter. We do this by putting forward the consumer interest, particularly that of disadvantaged groups in society, by researching, campaigning and working with those who can make a difference to achieve beneficial change. We are a non-profit making company limited by guarantee and funded partly by the Department of Trade and Industry.

SUMMARY TABLES FROM RSGB OMNIBUS SURVEY ON GM LABELLING FOR NCC (August 2001)

sample: 2000 adults (weighted base)

Q1 What in your view is first/second/third most important information on food labels?

Ranked importance

	<i>First</i>	<i>2nd</i>	<i>3rd</i>	<i>anywhere in first three</i>
full list of ingredients	717 (36%)	373 (19%)	248 (12%)	1338 (67%)
nutritional information	431 (22%)	424 (21%)	327 (16%)	1182 (59%)
information on allergic reaction	356 (18%)	310 (15%)	268 (13%)	934 (47%)
info on GM ingredients	108 (5%)	264 (13%)	279 (14%)	651 (33%)
country of origin	87 (4%)	176 (9%)	184 (9%)	447 (22%)
organic	41 (2%)	62 (3%)	98 (5%)	201 (10%)

Q2 How important is it to you that food containing ingredients made from GM plants is labelled with this information?

Total	very important 735 (37%)	fairly important 536 (27%)	not v important 361 (18%)	unimportant 310 (16%)	don't know 58 (3%)
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Q3 Sometimes all traces of GM raw materials are destroyed during food processing.

If this happens, would you still want to know that an ingredient (eg oils or glucose syrup) had originally come from a GM plant or not?

Total	YES 1121 (56%)	NO 796 (40%)	don't know 84 (4%)
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Q4 Foods containing GM ingredients do not have to be labelled if the GM material is present at a low level and is there accidentally. At the moment the permitted amount is up to 1 per cent - ie less than one part in 100. What level or amount of GM material in food would you find acceptable?

All questioned (2000 wtd base)	none at all, zero 673 (34%)	under 0.5% 159 (8%)	0.5% to 1% 264 (13%)	1% over 1% 177 (9%)	don't know 394 (20%)
Of those who had a view (1606)	673 (42%)	159 (10%)	264 (16%)	333 (21%)	177 (11%)

SUMMARY TABLES FROM RSGB OMNIBUS SURVEY ON GM LABELLING FOR NCC (August 2001) continued.

Q5 How important is it for you to know, in general, about what has been fed to the animals that produce meat, milk eggs and cheese, including milk and cheese from sheep, cows and goats? sample: 2000 adults (weighted base)

Total	very important 875 (44%)	fairly important 576 (29%)	not v important 285 (14%)	unimportant 190 (9%)	don't know 74 (4%)
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Q6 Do you think meat and other products from animals fed with GM feed should carry this information on the label?

Total	YES 1578 (79%)	NO 327 (16%)	don't know 95 (5%)
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Q7 You said that GM labelling is important. Why do you think food containing GM ingredients should be labelled?

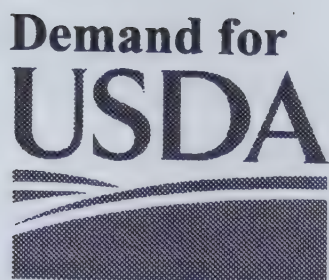
Of those who think labelling important (1663)	have a right to know 917 (55%)	important for health reasons 606 (36%)	ethical reasons 135 (8%)	environmental concerns 131 (8%)	other 154 (9%)	let's you know what eating 45 (3%)	don't know 75 (5%)
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Q8 An effective labelling scheme for all GM materials in food will cost extra to put in place. Somebody will have to pay for these additional costs. Who do you think should pay for a full labelling scheme for food?

Total	manufacturers 958 (48%)	government 789 (39%)	shops/supermkts 412 (21%)	consumers 196 (10%)	farmers 125 (6%)	don't know 106 (5%)	other 26 (1%)
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Q9 If the additional costs of a full labelling scheme for food were passed on to consumers, how willing would you be to pay extra for food that is labelled?

Total	Any willing 751 (38%)	Any not willing 1070 (53%)	don't know 97 (5%)	other 41 (2%)
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International Agricultural Trade Report

Certified

May. 23, 2001

Non-Biotech Soybean Meal Expands in the EU

Issue

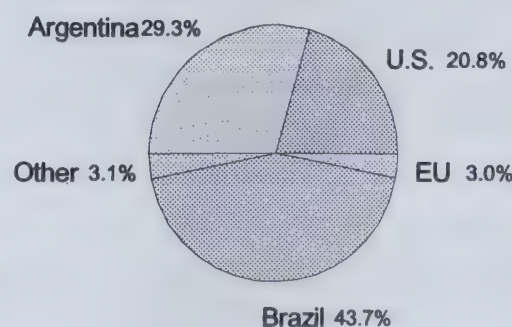
Feed compounders in the EU indicate that growing demand for meat products produced without biotech feeds has pushed demand for certified non-biotech soybean meal to 20-25 percent of the EU market. Brazil, which currently bans planting of Roundup Ready soybeans, is the primary source for non-biotech soybeans and soybean meal. U.S. soybean sales to the EU remain generally unaffected by the situation as imports of Brazilian soybeans and soybean meal continue to exceed demand for certified non-biotech soybean meal.

Summary

Over the past 12 months, demand for certified biotech-free soybean meal has grown from near zero to 20 to 25 percent of the EU market according to officials in the compound feed industry. Most of the demand is for poultry and pork feed with little demand seen for cattle, dairy, and other ruminants. Expectations by the European industry is for demand to increase in the coming year. Much of the growth in demand for feeding non-biotech feeds is coming from the retail food sector. Consumer demand for meat and meat products produced using non-biotech feed ingredients along with pressure from environmental organizations are often cited as the main forces driving the market.

Nearly fifty percent of the soybean meal consumed in the EU is currently obtained from regions where planting Roundup Ready soybeans is prohibited. Most (44%) of this is supplied from Brazil. Since demand for certified non-biotech soybean meal accounts for only half of what is readily available in the EU market, no additional imports are required to meet current demand and premiums remain low. Premiums range between \$1.50 and \$4.00 per ton of soybean meal and generally cover the cost of testing for biotech proteins in the meal. Currently, private contracts for purchases of certified soybean meal use a 1 percent threshold. U.S. market share, as a percent of EU soybean meal consumption, remains between 20 and 25 percent. Competitiveness of U.S. product continues to be impacted by price and supply considerations that currently remain unaffected by demand for non-biotech soybean meal.

EU Soybean Meal Consumption By Source



Background

The market for soybean meal containing less than one percent biotech material has grown from near zero to 20 to 25 percent of the market over the past year. During a recent trip to the EU by a member of the COTS analysis staff, feed manufacturers indicated that they expect continued market growth in the coming months as more retailers demand meat and meat products produced using non-biotech feed components. Growth in non-biotech products is being led by retailers in the UK, but others, particularly in Northern Europe, are beginning to request non-biotech meat products from suppliers.

In discussions with *Tesco*, a leading food retailer in the UK, consumer preference was cited as the main force behind the increase in demand. In addition, pressure from environmental groups was also noted. With recent incidents in Europe casting doubt on food safety, many consumers have grown more concerned about the safety and quality of the food they purchase, particularly meat and meat products. By providing non-biotech fed meats, retailers believe they can demonstrate to customers their commitment to selling only the highest quality products while satisfying the 25 percent of consumers surveyed who indicate a definite preference for non-biotech products. Additionally, environmental groups continue to express concern over the safety of biotech products and have pressured retailers to remove all biotech products from store shelves.

Despite surveys suggesting consumer interest in non-biotech products, consumers have shown a reluctance to pay a premium for non-biotech products. *Sainsbury*, another major food retailer in the UK, recently concluded a test market for premium non-biotech meats in which consumers showed a reluctance to pay premiums. Accordingly, retailers are demanding non-biotech meats from producers but at non-premium prices. Producers have responded and appear willing for now to absorb the additional feed costs which run less than one percent higher than conventional feeds. Premiums for non-biotech soybean meal, which accounts for 10 to 20 percent of feed rations currently run \$1.50 to \$4.00 per ton and primarily covers the cost of testing for biotech proteins.

The low premiums for non-biotech soybean meal, known as PCR-neg (less than 1 percent biotech), are due to the abundance of soybeans and soybean meal available from Brazil, Paraguay, and the EU where planting of Roundup Ready soybeans is prohibited. Current demand for PCR-neg soybean meal accounts for roughly half of the volume of soybean meal imported from these areas. Accordingly, the non-biotech market is accommodated without the need for additional imports from biotech-free countries. Therefore, sales of U.S. soybeans and meal have not been impacted by the segmentation of the market between biotech and non-biotech. Recent erosion of U.S. market share in the EU is due mainly to increased availability of competitively priced South American soybeans and meal.

However, continued growth in demand for non-biotech soybean meal could eventually have a negative impact on U.S. soybean sales to the EU. Already, we are beginning to see interest by some exporters to meet this growing demand. As an example, India, which does not allow planting of biotech soybeans, has recently sent a delegation to the EU in order to promote its non-biotech soybean meal.

FAS/CMP/COTS William George 720-6234

McDonalds restaurants throughout Europe announced during Nov. 2000 that they would not use genetically engineered crops in animal feed.

The multinational fast food chain announced during November 2000 that they will exclude genetically engineered crops e.g. soymeal & corn gluten from animal feed used for their poultry, pork and beef products in a number of European countries.

Matthias C. Baumgarten, Director Communications, McDonald's Deutschland Inc.

“In light of the increasing consumer awareness in German, we already decided during this year to approve only animal fodder that does not contain genetically engineered ingredients. Our suppliers will source their animal fodder solely in countries and regions where no genetically engineered varieties are grown (e.g. soybeans from Brazil)”.

Keith Kenny – Head of Quality Assurance, McDonalds UK.

“With regard to feed, McDonalds in the UK has taken the decision to move away from the use of animal feed containing GM ingredients...our chicken supplier already uses feed containing soyameal of Brazilian origin, which is principally non-GM. We are continuing to work with out suppliers of beef, pork, eggs & dairy products to identify sources of non-GM animal feed...”.

Similar commitments have been made so far in Germany, United Kingdom, Belgium, Switzerland, Denmark, Norway, Finland & Sweden.

McDonalds have already previously excluded GE ingredients from their food products, e.g. GE tomatoes, soy lecithin, potatoes.

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Ihr Zeichen	Ihre Nachricht	Unser Zeichen	Durchwahl-Rufnummer	Datum
		MCB/CAH	7 85 94-446	13. November 2000

Sehr geehrte Frau Ide,
sehr geehrter Herr Flothmann,

wie besprochen, möchten wir Sie hiermit über die aktuelle Situation bezüglich gentechnisch veränderter Bestandteile in Futtermitteln informieren, die im Rahmen einer unabhängigen Prüfung ermittelt wurde.

In Anbetracht der zunehmenden Besorgnis der Verbraucher in Deutschland haben wir im Laufe dieses Jahres bereits entschieden, ausschließlich Futtermittel zuzulassen, die keine gentechnisch veränderten Bestandteile enthalten. Auf der Grundlage der Ergebnisse dieser unabhängigen Prüfung haben wir diese Entscheidung unseren Lieferanten gegenüber noch einmal bekräftigt. Unsere Vorlieferanten werden ihre Tiernahrung ausschließlich in Ländern oder Regionen beschaffen, in denen keine gentechnisch veränderten Sorten angebaut werden (z.B. Soja aus Brasilien).

In Deutschland sind wir unserem Ziel, eines vollständigen Ausschlusses gentechnisch veränderter Bestandteile in Geflügelfutter, bereits ein gutes Stück näher gekommen und werden es bis zum Ende des ersten Quartals 2001 erreicht haben.

Es bleibt darauf hinzuweisen, daß das von unseren Lieferanten verarbeitete Hähnchenfleisch, nur einen geringen Teil der Gesamtproduktion der Geflügelerzeuger ausmacht. Eine derartige von uns geforderte Veränderung betrifft aber das gesamte Produktionsvolumen der Erzeuger. Ferner müssen adäquate Kontrollmechanismen eingerichtet werden.



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Natürlich könnte die vorgeschlagene Tierfutter-Verordnung der EU Klarheit in diese Angelegenheit bringen, da diese dazu führen würde, daß für alle am Markt erhältlichen Futtermittel gentechnisch veränderte Bestandteile deklariert werden müßten.

McDonald's befürwortet, daß auf wissenschaftlich begründeter, rationaler und praktisch durchführbarer Basis auf dieses komplexe Thema zugegangen wird, das weit über die Grenzen von McDonald's hinausgeht und die Landwirtschaft und Lebensmittelindustrie rund um den Globus betrifft. Natürlich sind in diesem Bereich die zuständigen staatlichen Behörden, die über das erforderliche Fachwissen verfügen, als Entscheidungsträger am besten geeignet.

McDonald's schenkt den Wünschen und Bedenken seiner Kunden genaueste Beachtung, insbesondere wenn es um das Vertrauen in die von uns angebotenen Produkte geht. Das Vertrauen unserer Kunden hat absoluten Vorrang. Aus diesem Grund verwenden wir schon seit geraumer Zeit ausschließlich Zutaten, die keine gentechnisch veränderten Bestandteile enthalten. Was Tierfutterbestandteile anbetrifft, überträgt sich - wie Sie wissen - eine gentechnische Veränderung nicht auf das Fleisch.

Mit freundlichen Grüßen
McDonald's Deutschland Inc.


Matthias C. Baumgarten
Direktor Kommunikation

13 November 2000

Andy Tait
GM Campaigner
Greenpeace UK
Canonbury Villas
London
N1 2PN

Dear Andy

Thank you for your patience, and I apologise once again for the delay in replying to your letter regarding GM crops in food and animal feed.

I know you are aware of our position regarding GM ingredients in our products, however, as requested, I am attaching a copy of our statement for your information.

With regard to feed, McDonald's in the UK has taken the decision to move away from the use of animal feed containing GM ingredients. We have therefore requested that our suppliers seek non-GM sources of feed.

As you know, our chicken supplier already uses feed containing soyameal of Brazilian origin, which is principally non-GM.

We are continuing to work with our suppliers of beef, pork, eggs and dairy products to identify sources of non-GM animal feed, although sustainability remains a concern.

I hope this answers your enquiry, however, don't hesitate to contact me if you have any further questions.

Kind regards

Yours sincerely



Keith Kenny
Head of Quality Assurance



Official Sponsor



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McDonald's Restaurants Limited

Quality Assurance

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SPAR Österr. Warenhandels-AG
Europastr. 3, 5020 Salzburg

Salzburg, 27.3.2001

Information an Greenpeace

SPAR gegen Gentechnik in Futtermitteln

Betroffene Lieferanten werden angeschrieben

SPAR Österreich hält Gentechnik in der Nahrungsmittelproduktion grundsätzlich für eine Risikotechnologie und engagiert sich daher schon seit Jahren in diesem Bereich:

Bereits 1994 übergab SPAR an den damaligen Bundeskanzler, die Bundesminister, zuständige Politiker, Kammervertreter und EU-Parlamentarier eine Resolution, in der SPAR eine lückenlose Kennzeichnung gentechnisch veränderter Lebensmittel fordert.

In Folge werden immer wieder eingehende Gespräche mit Lieferanten geführt und teilweise Produkte ausgelistet.

Besonders zu bemerken ist neben vielen anderen Aktivitäten der SPAR das Engagement in der "ARGE für gentechnik-frei erzeugte Lebensmittel", wo an der Erstellung einer gentechnik-frei Definition und des zugehörigen Kontrollsystems mitgearbeitet wird.

1997 ergeht ein Schreiben an alle Fleischlieferanten der SPAR, in dem der Einsatz von gentechnik-freiem Futter gefordert wird (in Zusammenarbeit mit dem Handelshaus Pilstl).

Ergebnisse von Analysen verschiedener in Österreich verwendeter Futtermittel durch Greenpeace haben ergeben, dass in den Futtermitteln erhebliche Anteile gentechnisch veränderter Bestandteile enthalten sind.

Im Sinne der Ernährungssicherheit lehnt SPAR Gentechnik auch in Futtermitteln ab.

SPAR nimmt dies daher zum Anlass, an die betroffenen österreichischen Lieferanten im Frischwarenbereich (Fleisch, Wurst, Milch, Milchprodukte und Eier) ein Schreiben zu richten, in dem sich SPAR eindeutig gegen Gentechnik in Futtermitteln deklariert und in dem die gentechnik-freie Fütterung der Tiere gefordert wird.

Die Schreiben sind Ende März versandt worden, entsprechende Antworten werden bis Ende April erwartet.

Weitere Auskünfte bei:

Mag. Nicole Berkmann Leiterin Konzerninformation und Öffentlichkeitsarbeit
SPAR Österreichische Warenhandels-AG, Europastr. 3, 5020 Salzburg
Tel. 0662 / 4470 - 22300 Nicole.Berkmann@spar.at

SPAR against GMOs in Animal Fodder

Affected suppliers will be informed

SPAR Austria principally takes genetic engineering for a risk-technology and in the past years has done a lot in this field:

Already in 1994, SPAR turned over a resolution to the chancellor, the state ministers, affected politicians, representatives of professional associations and the EU-parliamentarians in which SPAR demands the complete marking of genetically modified food.

Following this, we repeatedly conducted intensive conversations with our suppliers and partially sorted out products.

Particularly remarkable, besides many more activities of SPAR, is its involvement in the "ARGE for GE-free produced Food", where SPAR is contributing to the completion of a GE-free definition and the appropriate control system.

In 1997 Spar sent a letter to all their meat-suppliers postulating the use of GE-free fodder (in co-operation with the trade house Pilstl).

Analyses of different animal feed used in Austria on behalf of Greenpeace showed that the feed did contain considerable allotments of genetically engineered ingredients.

In terms of nutrition-safety, SPAR depreciates genetic engineering in animal feed as well. Consequently, SPAR directs a letter to their affected suppliers of (meat, sausage, milk, milk-products and eggs), in which SPAR clearly points out its disapproval of genetically engineered animal feed and in which the GE-free feeding of the animals is arrogated.

The letters were mailed at the end of march, complying answers are expected until the end of April.

BELGIUMS TOP THREE RETAILERS ARE COMMITTED TO REMOVING GENETICALLY MODIFIED CROPS FROM BOTH FOOD AND ANIMAL FEED

Carrefour Belgium (formerly GB)
#1 retailer (30% of the market)

"Today, GB Group can confirm ... that all its own-brand products are free of GMOs and/or derivatives from GM plants. One step further : ... GB Group has decided against the use of GMOs in animal feed. This way, GB Group goes in the same direction as Greenpeace. As first retailer in Belgium, GB Group reckons to have an important responsibility regarding environmental safety and wants to meet its customers' expectations."

Source : press release on 2 August 2000

Delhaize-Le-Lion / Delhaize-De-Leeuw
#2 retailer (15% of the market)

"In absence of certainties and in order to let consumers decide freely, Delhaize decided at the beginning of 1999 to get rid of ingredients derived from GMOs in its own-brand products ... In the same sense, Delhaize has decided to go further and asks animal production operators to organise and preserve non-GMO food chains through traceability and control systems. Soy from Northern Brazil provinces, as well as maize of European origin are privileged by animal feed manufacturers."

Today ... Red Label poultry ... comes from animals fed without GMOs. As early as the beginning of next year, Delhaize will offer its consumers a majority of poultry, eggs and fish ... products coming from animals fed without GMOs or their derivatives. Other products will be added progressively."

Source : position paper presented during Greenpeace animal feed press conference in Brussels on 13 October 2000

Colruyt
#3 retailer (15% of the market)

"Colruyt's position regarding GMOs is very clear : we deliberately choose to exclude any risk. For all our own-brand products, we require and receive from our suppliers guarantees that they don't use manipulated or modified products. We have now entered the second phase of our action and are studying in detail feed of animals from which our products such as milk, eggs, cheese, fish and meat come ... I can already confirm that we have firm guarantees for all the eggs sold by Colruyt. The chicken laying our eggs receive an entirely vegetal feed and without any ingredients containing GMOs."

Source : press release presented during Greenpeace animal feed press conference in Brussels on 13 October 2000

Originals in French and Dutch available on request.
They can also be found on www.gb.be, www.delhaize-le-lion.be and www.colruyt.be

Communiqué de presse

Communication de Colruyt sur sa position par rapport aux OGM

La position de Colruyt en matière d'OGM (organismes génétiquement modifiés) est très claire : nous choisissons délibérément d'**exclure tout risque**.

- Pour toutes nos **marques propres**, nous exigeons et recevons de nos fournisseurs des garanties écrites certifiant qu'ils n'utilisent pas de produits manipulés ou modifiés. Et nous allons même plus loin. Des produits comme l'huile de soja raffinée, par exemple, où il est impossible de détecter la moindre trace d'OGM, nous les avons quand même remplacés.
- Pour les **marques nationales**, nos acheteurs choisissent des produits qui ne contiennent aucun ingrédient issu d'OGM. S'il n'y a pas d'alternative valable, l'emballage mentionnera clairement la source. Le client peut donc toujours choisir en connaissance de cause. Entre-temps, nous poursuivons notre recherche de produits sans OGM.

Tout ceci s'inscrit clairement dans notre programme Green Line et confirme l'attention constante que nous portons à la **qualité de notre alimentation**. Nous pensons ici, entre autres, au développement de notre assortiment de produits bio et à nos garanties pour la viande, où nous allons plus loin que ce que la loi prescrit. C'est ainsi que la viande Colruyt est garantie sans hormones, sans tranquillisants et sans antibiotiques. En plus, les éleveurs utilisent une alimentation exclusivement végétale, sans matières animales.

Par ailleurs, nous gardons toujours clairement à l'esprit que ce que nous faisons doit aussi être réaliste et économiquement réalisable.

Nous sommes maintenant entrés dans la deuxième phase de notre action et nous examinons dans le détail **l'alimentation des animaux** dont proviennent nos produits, comme le lait, les oeufs, le fromage, le poisson et la viande.

Ici aussi, nous devons **rester réalistes**. Si nous voulons donner pour tous ces produits les garanties que les animaux ont été nourris sans OGM, nous voulons le faire en concertation avec nos fournisseurs, et pour cela, nous avons encore besoin de temps. Nous voulons en effet être sûrs que ceci est économiquement réalisable, tant pour Colruyt que pour les clients.

C'est évident, des **attentes très concrètes** subsistent encore et c'est la raison pour laquelle nous avons envoyé une lettre à tous nos fournisseurs, leur demandant de n'utiliser, pour leurs animaux, que de la nourriture sans OGM.

En ce qui concerne ce dernier point, nous sommes sur la bonne voie. Je peux ainsi déjà vous confirmer que nous avons des **garanties fermes pour tous les oeufs** que vend Colruyt. Les poules qui pondent nos oeufs reçoivent une alimentation entièrement végétale et sans aucun ingrédient contenant des OGM. De plus, les oeufs ne contiennent aucun colorant de synthèse.

Nous sommes conscients que ceci aura, au début, certainement un impact sur les coûts. Mais parce que Colruyt a la ferme volonté de **bannir tous les OGM**, nous voulons y investir.

Pour plus d'information, consultez notre site Internet: www.colruyt.be, rubrique Colruyt et l'environnement.



Position de Delhaize Le Lion Belgique sur les Organismes Génétiquement Modifiés (OGM) OCTOBRE 2000

Delhaize et ses produits de marque propre

En l'absence de certitudes et afin de laisser le libre choix aux consommateurs, Delhaize Le Lion a décidé début 99 d'éliminer les ingrédients dérivés d'OGM dans les produits de ses marques propres Delhaize et Derby et a, pour cela, demandé à tous ses fournisseurs de lui fournir des garanties écrites certifiant qu'aucun ingrédient dérivé d'OGM n'est utilisé. Par manque de recul, les répercussions d'une alimentation à base d'OGM demeurent inconnues pour la santé et l'environnement même si a priori il n'existe pas de risques scientifiquement validés.

Reformulation des produits

Cette tâche considérable a amené nos fournisseurs à substituer bon nombre d'ingrédients par des alternatives non dérivées d'OGM (l'huile de soja est remplacée par exemple par de l'huile de tournesol) ou à se procurer des ingrédients dérivés de soja ou de maïs présentant les garanties non OGM requises.

Delhaize Le Lion et les OGM dans l'alimentation animale

Dans la même optique, Delhaize Le Lion a décidé d'aller plus loin et demande aux opérateurs de la production animale de s'organiser pour préserver des filières non OGM au moyen de la traçabilité et de systèmes de contrôle. L'achat de soja provenant des provinces du nord du Brésil ainsi que le maïs d'origine européenne est privilégié par les fabricants d'aliments composés pour animaux.

Organisation des contrôles

Afin de recevoir toutes les garanties, les importateurs de soja et de maïs répondant à notre demande mettent actuellement en place un système de surveillance permettant de préserver l'identité non OGM des filières et de détecter toute trace éventuelle d'OGM. Des mesures préventives comme la séparation physique des récoltes sont ainsi prises depuis l'origine jusqu'au niveau de la ferme d'élevage pour éviter tout mélange avec des matières contenant des OGM.

Pour avancer dans ce domaine, Delhaize s'est entouré de laboratoires étrangers à la pointe qui lui permettent d'être informé de toute évolution et qu'il recommande à ses fournisseurs pour l'exécution des analyses.

Néanmoins, Delhaize souhaite que la législation européenne en matière d'alimentation animale évolue rapidement car il n'existe toujours pas de méthodes de contrôle officiels, de labos reconnus et de seuil de contamination toléré, ce qui empêche toute définition légale du non OGM.

Quelles sont les réalisations à ce jour ?

Actuellement, tous les produits d'origine animale issus de l'agriculture biologique (33 références en boucherie, 32 en crèmerie) et les volailles label rouge (7 références) proviennent d'élevages nourris avec une alimentation sans OGM

Delhaize Le Lion proposera à ses consommateurs dès le début de l'année prochaine une majorité de produits du rayon volaille, oeufs et poisson (saumon, truite, turbot) provenant également d'élevages nourris avec une alimentation sans OGM et leurs dérivés. D'autres produits s'ajouteront progressivement.

Info presse : J. van de Put, Quality Manager Delhaize Le Lion
Tél : 02/412.25.60
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e-mail : jvandepu@delhaize-le-lion.be



HEINZ IN BELGIUM

GENETICALLY MODIFIED INGREDIENTS

- Heinz remains committed to taking every possible step to ensure that Heinz varieties remain free from ingredients derived from genetically modified crops and this includes animals fed on GM crops.
- Where there is the potential for GM material to be present, or where ingredients are derived from soya or maize, we source non-GM, identity preserved ingredients through carefully audited suppliers. In addition, independent testing is carried out.
- The use of GM crops in animal feed is a sizeable farming issue particularly with respect to commodity ingredients widely used in food manufacture. However, Heinz has been reviewing this issue in detail.
- As a result of our achievements to date and our continuing ingredient review programme, the vast majority of the suppliers we use for beef, lamb and poultry do not use GM animal feed. We are also reviewing our sourcing strategies for pig meat with the aim of ensuring similar status whilst still meeting the highest technical and quality standards.
- With respect to other ingredients such as eggs and dairy produce, we have been making considerable progress as part of our GM review programme.
- In recent months our necessary audit programme has been hampered by the restrictions imposed by Foot and Mouth Disease controls but we anticipate that this work will be satisfactorily completed this autumn. This programme will ensure that meat, eggs and dairy in Heinz varieties are not from animals fed on GM crops.
- In February this year Heinz completed the acquisition of the CSM Food Division which includes HAK, Kwatta and Anco brands sold in Belgium.
- Where ingredients for CSM products are derived from soya or maize, CSM source non-GM, identity preserved ingredients through carefully audited suppliers.
- The CSM Food Division is being integrated within Heinz in Europe and as part of Heinz's commitment to avoiding GM the detailed process of reviewing all CSM ingredient suppliers is being progressed.

May 2001

Pressemeddelelser

Danish Crown lancerer svinekød baseret på GMO-frit foder

Danish Crown har besluttet at starte en produktion af kød fra svin fodret med GMO-frit foder. I de kommende uger tages der kontakt til en række af selskabets andelshavere med en forespørgsel om at tegne kontrakt om kun at anvende GMO-frit svinefoder i deres besætninger, og efter nogle måneder vil det første svinekød baseret på GMO-frit foder være klar til salg.

- Vi har arbejdet med denne beslutning siden i efteråret, hvor vi som led i vores strategi indledte undersøgelser af dels muligheden for at få tilstrækkelige mængder GMO-frit foder dels detailhandelens villighed til at ville dække meromkostningerne ved denne produktion, siger adm. direktør Kjeld Johannesen, Danish Crown.

- Vi har en strategisk beslutning om at ville tilbyde vore kunder differentierede produkter. Derfor anser vi det for naturligt, at vi også kan tilbyde svinekød produceret med GMO-frit foder. Og vi har nu dokumentationen på plads for, at det importerede proteinfoder er GMO-frit, og vi har sikkerhed for, at grovvarebranchen er i stand til at levere de nødvendige mængder GMO-frit foder, så en produktion kan påbegyndes. Derfor har vi besluttet at igangsætte projektet, og vi lægger ud med en ugentlig produktion på 5.000-7.000 svin, fodret med GMO-frit svinefoder.

- Det er især vore engelske kunder, der har vist interesse for og vilje til at indgå kontrakt om en fast leverance, så de har mulighed for at markedsføre svinekød produceret på basis af GMO-frit foder. Det er også vores plan at lave specialprodukter til det danske marked, hvis der i den danske detailhandel er interesse herfor, siger Kjeld Johannesen.

Da afsætningen især knytter sig til det engelske marked, er det landmænd, der i forvejen har en kontrakt på Englands-grise, der får mulighed for at udvide kontrakten til også at omfatte produktion med GMO-frit foder. De, der tegner kontrakt, får et tillæg til noteringen, så de får dækket meromkostningerne ved at bruge GMO-frit svinefoder.

Danish Crown launches pork based on GMO-free feed

16-02-2001 – PRESS RELEASE

Danish Crown has decided to start a production of pork from pigs that have been fed GMO-free feed. In the course of the next few weeks we will contact a number of the company's members in order to enquire whether they would like to make a contract on using GMO-free pig feed exclusively in their herds, and after a few months' time the first pork based on GMO-free feed will be ready for sale.

- We have worked on this decision since last fall when, as an element of our strategy, we initiated studies to ascertain partly the possibilities of obtaining sufficient volumes of GMO-free feed and partly the willingness of the retail trade to cover the additional cost of this production, says Kjeld Johannesen, the CEO of Danish Crown.

- We have made the strategic decision that we want to offer our customers differentiated products. We therefore consider it natural that we should also be able to offer pork produced with GMO-free feed. Moreover, we now have the documentation necessary for showing that the imported protein feed is GMO-free, and we have obtained guarantees that the feed supply industry is able to supply the necessary volumes of GMO-free feed such that a production may be started. We have therefore decided to initiate the project, and we will start out with a weekly production of 5,000-7,000 pigs that have been fed GMO-free pig feed.

- Our British customers in particular have shown an interest in and a willingness to make contracts for fixed supplies such that they will be able to market pork produced on the basis of GMO-free feed. We also plan to produce special products for the Danish market if the Danish retail trade shows an interest in such products, says Kjeld Johannesen.

Since the sale is especially directed towards the UK market, those farmers who have already made a contract for production of special pigs for the UK market will be offered the opportunity to extend their contract to include production with GMO-free feed as well. Those farmers who sign the contract will receive a supplement to the standard quotation price such that they are compensated for the additional cost of using GMO-free pig feed.

TRANSLATION

Extract of leaflet (in French) published by Carrefour, summer 2001
OGM – 5 ans d'engagements Carrefour

GMOs – 5 years of commitment by Carrefour

In 1996 a ship arrived in France carrying transgenic soya and maize mixed with non-GM products. Like other food companies, Carrefour was confronted by this phenomenon for the first time. The application of genetic engineering to agriculture is such a turning point in the history of humanity, that it seemed necessary to us to evaluate the benefits and risks. Along with other responsible companies in the food supply chain, we wanted to better understand the issue, and to that end we listened to a large number of experts from all backgrounds. In light of the potential risks, both to health and to the environment, we applied the precautionary principle. For Carrefour, this principle must be applied because, in the absence of scientific certainty, a problem could be irreversible and uncontrollable.

Arguments which are being put forward regarding the use of GMOs in agriculture

Argument 1 : “GMOs will make it possible to lower the amounts of agrochemical products being spread on crops.”

Among the GMOs grown today in the world, 71% are herbicide tolerant plants (Round Up or Liberty), and 28% are insecticide plants (Bt maize, Bt cotton). Insecticide plants produce their own insecticide and kill their parasites. Thus, they only kill some insects (the Corn borer – and, sadly, the Monarch butterfly as an unwanted effect). The appearance of more resistant insects is inevitable and will bring the need to use insecticides which are more aggressive to natural environment. The same is true for herbicide tolerant plants : they will create more resistant weeds that will require more spraying.

Additionally, recombination of GM plants with wild “cousin” plants is already creating new generations of even more resistant weeds that will require farmers to use stronger new herbicides.

Finally, GM crops have been developed a lot in North America. However, insecticide use has not decreased in the US, and herbicide sales have doubled in Canada with the introduction of GE rape.

Argument 2 : “GMOs will make it possible to feed the poorer countries.”

While it is true that research on crops designed for the poorer countries is in progress, these are far from having proved themselves. And these seeds, which will have required sophisticated engineering methods, will be more expensive than conventional seeds. Additionally, they will be protected by patents, and farmers will have to buy them again each year.

GMOs also bear a risk for the poorer countries, located between the tropics : being deprived of their own crops which, endowed with new genes, could be grown in countries closer to the places of consumption.

For starving countries, really useful, cheap, easy to grow plants with no ill consequences for health and environment are still awaited. This hope must not be used as an alibi to market insect resistant or herbicide tolerant GM seeds somewhere else.

Argument 3 : “GMOs would also make it possible to enhance the nutritional quality of crops.”

This hypothesis is attractive but nothing practical has been carried out yet.

Argument 4 : “Those opposing GMOs are against progress and genetic engineering.”

Genetics is a path that has to be pursued and encouraged for the treatment of severe diseases, such as myopathy : gene therapies will make it possible to heal people suffering from severe ailments and incurring great risks. Nothing to do with GMOs, which introduce new risks where there was none, for a undemonstrated usefulness.

THE PRECAUTIONARY PRINCIPLE - THE BASIS OF CARREFOUR'S COMMITMENT

Considering the lack of scientific certainties, of existing uncontrolled risks and irreversible impacts, Carrefour chose to implement the precautionary principle by offering its customers a credible alternative with Carrefour brand GE-free products.

Carrefour's steps to provide its customers with GE-free products

SINCE LATE 1996, Carrefour has identified in the composition of each product of its brand the ingredients and additives likely to contain GMOs. On 1.783 studied products, only 513 contained maize, soy or one of their derivatives, and could thus be affected by GMOs.

FOR 286 PRODUCTS, the ingredients derived from maize or soy were substituted by products for which genetic modification is not permitted, for example by replacing soy oil by sunflower oil, or maize glucose syrup by sugar. For all these products, new recipes have been elaborated and systematically tested among customers; the rule fixed by Carrefour was that the new recipes had to be at least as much appreciated as the original recipes.

FOR 221 PRODUCTS for which substitution was not possible for technical reasons, we committed ourselves to guarantee ingredient traceability from its origin, and we asked our suppliers to conduct regular tests for maize, soy or derivatives used in the composition of Carrefour brand products, in order to confirm their GE-free characteristics.

NINE PRODUCTS WERE TAKEN OUT of sale. Among them, neither substitution nor traceability was possible.

CARREFOUR HAS BEEN THE FIRST to initiate this original and then very restrictive approach, which has served as an example for all retailers since then.

All Carrefour products have been GE-FREE since the first of January 1999.
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Moreover, in conformity to the regulation, all Carrefour bio products are GE-free.

From human food to animal feed

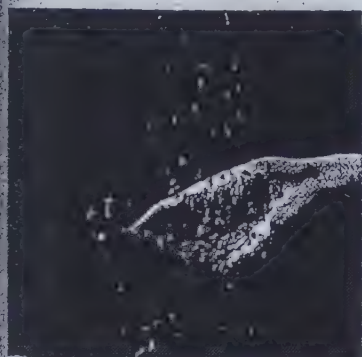
IN ORDER TO BE CONSISTENT WITH THE **GE-FREE POLICY** defined for human food, Carrefour has been extending its approach to animal feed since 1998. It required, once more, two years working. The quantities of soy cake produced in France were not sufficient, so we turned to Brazil, where GMO crops are banned. We worked with our many local partners, Carrefour being the first retailer of the country, and the first shipment arrived in France in April 2000. Today, 25 000 tons of traced and tested soy cake are delivered each month.

THIS COMMITMENT ALREADY CONCERNS the following products : Carrefour brand poultries, eggs and cooked ham, as well as Filière Qualité Carrefour delicatessen. A similar work has been engaged for the following products: beef, milk and all dairy products. This is a priority goal for Carrefour.



**ORIGINAL
WIESENHOF**

**Gentechnisch verändertes
Soja kommt bei uns
garantiert nicht ins Futter!**



Gentechnisch veränderte Lebensmittel stehen in der öffentlichen Diskussion: Die Wissenschaft diskutiert die

Gentechnik kontrovers. Die Verbraucher sind verunsichert und bevorzugen daher Lebensmittel, die nicht mit Hilfe der Gentechnik hergestellt wurden.

WIESENHOF geht kein Risiko ein und setzt erneut ein Zeichen in puncto Transparenz und Sicherheit:

WIESENHOF verwendet nachweislich kein gentechnisch verändertes Soja in der Tierfutterproduktion!

Das neutrale und unabhängige GeneScan Institut in Freiburg überwacht die Reinheit des Sojas.

Dabei wird die Rückverfolgbarkeit des Sojas vollständig dokumentiert.

WIESENHOF ist der einzige Geflügel-Anbieter in der EU, der Gen-Kontrollen in dieser Form durchführt!

Soja für WIESENHOF:

BRASILILIEN

WO Sichere Anbaugelände

WAS Sojabohnen-Erfassung

QUICK-TEST



LKW

WO Separates Lagerhaus

1. PCR-TEST



SILO

WAS Lagerung der selektierten WIESENHOF Sojabohnen



ZUG

WER Öl-Mühle



WAS Getrennte Lagerung und Verarbeitung der WIESENHOF Sojabohnen

2. PCR-TEST

kontrolliert vom Anbau bis zur Verarbeitung

DEUTSCHLAND

WO Brake

WAS Separate Lagerung



LKW



ZUG



SCHIFF



SCHIFF



DEUTSCHLAND

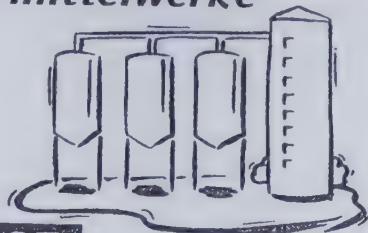


WO Rechterfeld

Haldensleben

Straubing

WER WIESENHOF eigene Futtermittelwerke



3. PCR-TEST

WAS Auslieferung von Hähnchenfutter mit nicht gentechnisch verändertem Soja an die WIESENHOF Geflügelzüchter

GeneScan Europe AG

Die GeneScan Europe AG, ein weltweit agierendes Netzwerk innovativer Biotechnologie-Unternehmen mit Sitz in Freiburg ist Marktführer im Bereich der molekularbiologischen Analytik von gentechnisch modifizierten Organismen.

Der Quick-Test

Ein erster, schneller Test, bei dem die genetische Reinheit des Rohstoffs per Farbindikator überprüft wird.

Der PCR-Test

Mit diesem Test können verarbeitete Futter- und Lebensmittel überprüft werden. Dabei werden z. B. Soja-Proben auf Erbsubstanzen hin untersucht, die eindeutig gentechnische Veränderungen aufweisen.

Der Test ist international anerkannt und standardisiert.

Wiesenhof – We do more.

We don't approve of genetically modified soy

Important information for trade, press and public

[Main text]

We guarantee there is no genetically modified soy in our feed

Genetically modified food is a public issue. Scientists are controversially discussing genetic engineering. Consumers are insecure and so prefer food which has not been made with the aid of genetic engineering.

Wiesenhof takes no risks and again sets standards in accountability and security. As can be proven, it does not use any genetically modified soy in producing animal feed.

GeneScan, a neutral, independent institute in Freiburg, checks the soy's purity. A comprehensive record is made of the routes taken by it.

Wiesenhof is the only poultry seller in the EU to make controls on genetic engineering in this way.

[Key to boxes and diagrams]

Soja für = Soy for *Wiesenhof* is controlled from planting to processing

Wo = where

Was = what

Wer = who

Brazil

Sichere Anbaubereiche = secure farming areas

Sojabohnen-Erfassung = soy collection

Lagerhaus = store

Lagerung der ... = storage of selected *Wiesenhof* soybeans

Öl-Mühle = oil mill

Getrennte ... = separate storage and processing of *Wiesenhof* soybeans

Germany

Wiesenhof eigene Futtermittelwerke = *Wiesenhof*'s own feedstuff works

Auslieferung ... = non-GM soy chicken feed supplied to *Wiesenhof* poultry breeders

[Text of black boxes, right-hand page]

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ΣΟΦΙΑ ΕΛΛΑΣ Α.Ε.
Ανώνυμος Βιομηχανική
& Εμπορική Εταιρεία
Επεξεργασίας
& Βιομηχανοποίησης
Ελαιωδών Σπόρων
& Ναυτιλίας



ΣΟΦΙΑ
ΕΛΛΑΣ

FAX MESSAGE

Προς : GREENPEACE
Υπ' όψη : κας Μυρτώ Πιστίνη

Από : Ανδρέα Γιαννακόπουλο

Ημερ. : 10-09-01
Σελ. : 1

Fax : 3804008

Σε απάντηση του fax σας στις 3/09/01 για την χρήση γενετικά τροποποιημένων οργανισμών, σας γνωρίζουμε ότι από τα μέσα Ιουνίου 2001 και μετά η ΣΟΦΙΑ ΕΛΛΑΣ Α.Ε. εισάγει αποκλειστικά μη γενετικά τροποποιημένο σογιόσπορο με πλήρη πιστοποίηση, με αποτέλεσμα το παραγόμενο σογιάλευρο + σογιέλαιο να είναι και αυτά μη γενετικά τροποποιημένα.

Φιλικά,

Α. Γιαννακόπουλος
Δι/τής Πωλήσεων

TRANSLATION

Letter (fax) from Soya Hellas

In response to your fax dated 3/9/01 regarding the use of GMOs, we would like to let you know that Soya Hellas SA imports exclusively non-GM certified soyabeans, and has done so since the middle of June 2001. Therefore, the soyameal and soya oil products will be non-GM as well.

Regards

A Giannakopoulos
Sales Manager

STORE TO IMPORT GM-FREE CHICKEN FEED

January 4, 2001

Irish Times

Declan Fahy

Superquinn is, according to this story, to import non-genetically Modified soya meal to ensure its fresh chickens are on a GM-free diet. The company says the move is in response to consumer concerns about what the farm animals are being fed. Superquinn says it has taken a year to secure a non-GM food supply from northern Brazil.

A systematic testing programme has been put in place by Superquinn to ensure the chickens' diet is free of GM ingredients. The first chickens to be reared in this way by the Carton Group in Co Monaghan are being sold in Superquinn shops this week. Superquinn says customers will not pay more for non-GM fed chicken.

Ms Paula Mee, Superquinn's food and nutrition adviser, was cited as saying that, there is no scientific justification for concerns that eating GM feed will mean the chicken's meat would become genetically modified, but nevertheless, some consumers were concerned about the effect of GM crops on the environment, adding, "Customers are constantly looking for Reassurance about fresh meat. We work with our suppliers towards developing systems that enable us to have full traceability and control over the fresh food that we sell."

The story says that pure non-GM soya meal will be shipped to Dublin from Brazil in a separate cargo hold every six weeks. It will then be Transported directly to storage facilities and then to the Carton Group milling plant, which has specialised facilities to ensure no mixing with GM ingredients occurs. The feed, which is fully traceable, will then be dispatched to Superquinn-contracted chicken farms.

IdentiGEN, a DNA testing company based in Trinity College Dublin, has devised a testing protocol for the chicken feed. The sampling and testing programme has been designed to verify the feed has no GM ingredients. The tests search for genes which have been engineered into the crop. Samples of the non-GM soya are collected at the port. DNA tests are also carried out on the final feed product.

Oggetto: **Certificazione filiere suino leggero e bovino piemontese**

La presente per informarVi sulle ultime realizzazioni relative al progetto di non utilizzo di organismi geneticamente modificati nei prodotti a nostro marchio.

Nel mese di agosto 2001 sono state certificate due ulteriori filiere animali: quelle del suino leggero e del bovino piemontese.

Queste le garanzie certificate:

- alimentazione priva di mais, soia, colza OGM
- alimentazione priva di grassi animali (le proteine animali sono ora vietate per legge)
- nascita ed allevamento esclusivamente in Italia
- controlli igienico sanitari dall'allevamento alla vendita
- la rintracciabilità lungo tutta la filiera.

Come si nota non abbiamo limitato la certificazione all'aspetto OGM, ma l'abbiamo arricchita con impegni relativi ad altre importanti caratteristiche di qualità e sicurezza.

Come promemoria riepilogo le precedenti realizzazioni.

Nel settembre 2000 abbiamo certificato che nei prodotti alimentari a marchio Coop non sono utilizzati mais, colza o loro derivati provenienti da piante geneticamente modificate (circa 200 prodotti di GV e Fresco Industriale che utilizzano ingredienti derivanti da queste filiere potenzialmente a rischio) ed il mese successivo abbiamo certificato tale standard anche nell'alimentazione del pollo a ns. marchio.

In due tappe -maggio ed agosto 2001- abbiamo raggiunto la certificazione della filiere del pesce d'allevamento, garantendo

- alimentazione priva di mais, soia, colza OGM
- alimentazione priva di grassi di animali terrestri (come in natura sono ammessi ingredienti derivati dal pesce)
- nascita ed allevamento esclusivamente in Italia
- controlli igienico sanitari dall'allevamento alla vendita
- la rintracciabilità lungo tutta la filiera.
- le caratteristiche nutrizionali: contenuto in grasso inferiore al 5 o 6% a seconda della specie e contenuto massimo in grassi saturi inferiori al 35%.

Altre filiere sono in completamento e vi terremo aggiornati.

Cordiali saluti
Maurizio Zucchi
Direttore Qualità
28.08.01

Coop Italia

TRANSLATION:

Subject: **Food chain certification for light pork and Piemontese Race beef**

The present letter is to inform you of the latest achievements regarding our plans not to use genetically modified organisms in our own-brand products.

In August 2001 we achieved certification for a further two animal product food chains: light pork and Piemontese Race beef.

The certifications include the following guarantees:

- animal feed without GM corn, soy or rapeseed
- animal feed without animal fats (animal proteins are now banned by law)
- birth and rearing exclusively in Italy
- checks on hygiene and health from rearing to sale
- traceability for the entire food chain

As you can see we have not limited the certification to the GMO aspect, but instead have developed it to include commitments regarding other important quality and safety characteristics.

I would like to briefly summarize our previous achievements.

In September 2000 we obtained certification that Coop own-brand food products do not contain corn, rapeseed or by-products which come from genetically modified plants (approximately 200 'GV' and 'Fresco Industriale' products which use ingredients which are derived from these potentially risky food chains) and the following month we certified the same standard regarding the feed for our own-brand chicken.

In two stages – May and August 2001 – we achieved certification for the farmed fish food chain, which guarantees:

- animal feed without GM corn, soy or rapeseed
- animal feed without land animal fats (as in nature ingredients derived from fish are allowed)
- birth and rearing exclusively in Italy
- checks on hygiene and health from rearing to sale
- traceability for the entire food chain
- nutritional characteristics: fat content lower than 5 or 6% depending on the species and maximum saturated fat content lower than 35%.

Other food chains are being completed and we will keep you updated on this.

Yours sincerely
Maurizio Zucchi
Quality Manager
28.08.01

Transgeenvrij veevoer eis LTO-melkvee

NIEUWE NIEDORP – De Nederlandse melkveehouderij moet in de toekomst volledig overschakelen op transgeenvrij veevoer. Dat vindt de LTO-vakgroep Melkveehouderij, die gaat onderzoeken of zo'n transgeenvrij voerspoor realiseerbaar en controleerbaar is.

Volgens Siemjan Schenk, voorzitter van de LTO-vakgroep, valt er voor de melkveehouderij op het terrein van biotechnologie weinig winst te behalen. Het voeren van transgeen voedsel levert bijvoorbeeld geen versnelde groei op. Alleen de teelt van maïs dat resistent is tegen het middel Roundup zou in Nederland aantrekkelijk kunnen zijn, meent Schenk.

Daarentegen levert de huidige maatschappelijke discussie over het wel of niet gebruiken van transgene gewassen of voedsel risico's voor de melkveehouderij op. Blijkt in een later stadium dat transgene gewassen toch een gevaar voor de volksgezondheid opleveren, dan kan de melkveehouderij bij gebruik van transgeen voer in grote problemen komen.

Schenk vindt het verstandig daar in een vroeg stadium op te reageren. "Je kunt in deze niet pro-actief genoeg zijn", zegt

hij, verwijzend naar het verbod op diermeel in veevoeder dat in Nederland jaren terug al werd genomen. Achteraf blijkt die beslissing juist te zijn geweest: de aanwezigheid van diermeel in veevoer leidt in de EU nu tot een geschaad consumentenvertrouwen.

Toch is Schenk voorzichtig over een verbod op transgeen veevoer omdat hij niet weet of het praktisch mogelijk is. Voerstroomers zullen gegarandeerd gescheiden moeten worden en bovendien is goede controle daarop noodzakelijk. "Eerst moeten we zekerheid hebben of dit haalbaar is." Daarover treedt de vakgroep in overleg met het Productschap Diervoeder en de Nederlandse Vereniging van Diervoederfabrikanten (Nevedi). Van beide heeft Schenk begrepen dat het in principe haalbaar is.

Kostenverhoging als gevolg van een verbod op transgeen voer zal marginaal zijn, stelt Schenk. "Het belangrijkste is dat je het kunt controleren."

Het Productschap Diervoeder (PDV) stelde vorig jaar dat het tegenhouden van transgene grondstoffen op termijn niet realistisch is. Toch stelde ook het PDV dat de afnemers en de consument een keus moeten kunnen maken uit wel of geen transgeenvrije producten.



Bloeiend Valentijnsrood zorgt

AALSMEER – Een koper bekijkt op Bloemenveiling Aalsmeer (VBA) de Valentijnsproducten in de speciaal daarvoor ingerichte vitrine. Op de G-tribune in Aalsmeer worden de planten dagelijks

voor vier kl...
De vitrin...
met Valent...
rode harten...
lentijn pop...

13 / 02 01

— AGRARISCH DAGBLAD

(NETHERLANDS FARM MAGAZINE

TRANSLATION

Article (in Dutch) from Agrarisch Dagblad, 13/2/01
Transgeenvrij veevoer eis LTO-melkvee

LTO dairy farmers demand GM-free feed

(Nieuwe Niedorp) The Dutch dairy industry has to switch in the future to completely GM-free feed. That is the opinion of the LTO group of dairy farmers, which is going to investigate whether such a GM-free route is realistic and verifiable.

According to Siemjan Schenk, chairman of the LTO group, there is little benefit in biotechnology for dairy farmers. For example the feeding of GM feed to cows does not lead to them growing faster. Only the actual growing of Roundup Ready maize could be of benefit to the Netherlands, says Schenk.

But the current position of using transgenic crops and food is a risk to dairy farming. If it were later found that transgenic crops pose a danger to health, it could cause great trouble for dairy farming.

Schenk thinks that it is sensible to act at an early stage: "It is very important to be proactive", he says, pointing to the prohibition of bonemeal in animal feed, a measure that the Netherlands implemented as early as the 1980s. With retrospect, that has turned out to have been a good decision. The presence of bonemeal in animal feed currently undermines the trust of consumers all over Europe.

Nevertheless Schenk is careful about prohibiting the use of transgenic feed, because he doesn't know if it can practically be achieved. Supply streams of feed have to be strictly separated, and good controls maintained. "First we need to know if this is feasible". The union will start talks on the issue with the Productschap Diervoeder (animal feed product board) and the Nederlandse Vereniging van Diervoeder Fabrikanten (Dutch Association of Animal Feed Producers). Both organisations told Schenk that in principle it is feasible.

The increase in costs from going GM-free in feed will be marginal, according to Schenk. "The most important thing is that we can verify it".

The Productschap Diervoeder (PDV) stated last year that it is not feasible to stop using transgenic raw materials. But on the other hand, the PDV said that consumers and buyers of feed should have a choice between GM and non-GM feed.



Greenpeace Nederland

T.a.v Dhr. Geert Ritsema

Campagnemedewerker biodiversiteit

Keizersgracht 174

1016 DW Amsterdam

NEDERLAND

Aangetekend

Wevelgem, 5 april 2001

Geachte Heer Ritsema,

Als antwoord op uw schrijven van 6 maart ll., betreffende genetisch gemanipuleerd veevoer, willen wij u het volgende mededelen.

Eerst en vooral willen we opnieuw bevestigen, geen ingrediënten of productieprocessen voor onze drinks, desserts en yoghurts op basis van soja te selecteren, die enig verband houden met genetische engineering. Bijgevolg is onze bijproduct-stroom, sojavezels, bestemd voor veevoer, volledig vrij van genetische gemodificeerde ingrediënten.

Deze verbintenis steunt op een gecontroleerd bevoorradingsstelsel van de initiële producent tot en met het afgewerkte product en bijprodukten.

Als bijlage vindt u een overzicht van de verschillende maatregelen die alle als doel hebben elk mogelijk risico van contaminatie te minimaliseren.

Daar wij in onze producten enkel plantaardige ingrediënten verwerken is uw vraag betreffende het garanderen dat onze artikelen uitsluitend afkomstig zijn van dieren die gevoerd zijn met voer zonder genetisch gemanipuleerde organismen, niet voor ons van toepassing.

Door het leveren van veevoer vrij van genetisch gemodificeerde ingrediënten, leveren wij een belangrijke bijdrage tot het GGO vrij houden van de voedselketen.

Onze politiek wordt ondersteund door permanente inspanningen om de kwaliteit en integriteit van onze producten te vrijwaren.

Jean-Marie Craeye

HSEQ -manager

jean-marie.craeye@alpro.be
jean-marie.

Jean Vandemoortele

Managing Director

jean.vandemoortele@alpro.be
vandemo

Bijlage :
- Samenvatting 'code of conduct'
- GMO-vrij certificaat SGS

TRANSLATION:

Alpro Soja
Vlamingstraat 28
B-8560 Wevelgem
Belgium

Greenpeace Netherlands
Attn. Geert Ritsema
Keizersgracht 174
1016 DW Amsterdam
The Netherlands

Wevelgem, April 5 2001

Dear mr. Ritsema,

In response to your letter of March 6th regarding genetically manipulated animal feed we would like to state the following.

First of all and especially again we would like to confirm that we use no ingredients or production processes for our soya based drinks, deserts and yoghurts that have any connection with genetic engineering. Consequently our sub product, soy fibres destined for cattle feed, is completely free from genetically modified ingredients.

This commitment is supported by a controlled supplying system, starting at the initial producer up to the complete product and sub product.

Enclosed an overview of the different measurements all aiming to minimise any possible risk of contamination.

Your question regarding the guarantee that our products are solely derived from animals that have been fed with gmo-free animal feed, is not applicable to us since we only use vegetable ingredients.

By supplying gmo free animal feed we provide an important contribution to keep the food chain free from gmo's.

We support our policy with permanent efforts to safeguard the quality and integrity of our products.

Jean-Marie Craeye
HSEQ-manager

Jean Vandemoortele
Managing Director

Pingo Poultry

Business Unit Pingo Poultry
Nutreco International B.V.
P.O. Box 220
NL-5830 AE Boxmeer
The Netherlands
Phone: +31 485 58 99 44
Fax: +31 485 57 39 56

Drs. M. A. van Hagen
Marketing Manager Business Unit Pingo Poultry
Postbus 220
5830 AE BOXMEER

Drs. G. Ritsema
Campagnemedewerker Biodiversiteit
Greenpeace Nederland
Keizersgracht 174
1016 DW AMSTERDAM

Boxmeer, 5 april 2001

Betreft: Standpunt Nederlandse Pingo Poultry bedrijven in zake GGO's

Geachte heer Ritsema,

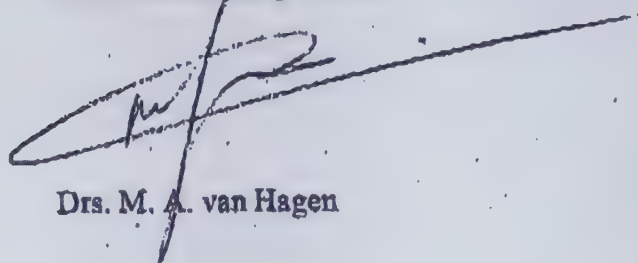
In antwoord op uw schrijven van 6 maart jl. aan diverse operating companies van Pingo Poultry in Nederland (Pingo Poultry Ingredients BV te Goor, Hencu te Cuijk en Pingo Poultry Products te Hedel) kan ik u het volgende berichten.

Als dochtermaatschappij van Nutreco in Boxmeer hebben wij als uitgangspunt voor al ons handelen het willen voldoen aan de wettelijk gestelde normen. Voor extra eisen daar bovenop laten wij ons leiden door de markt, dan wel de consument. Zo wordt op verzoek van onze belangrijkste klanten reeds vanaf mei 2000 alleen non-GMO soja gebruikt in al het voer dat aan de kuikens van Pingo Poultry wordt gevoerd.

In nauw overleg met Nutreco zal Pingo Poultry de discussie en de voortschrijdende inzichten blijven volgen.

In het vertrouwen u voldoende te hebben geïnformeerd over ons standpunt, verblijf ik,

Met vriendelijke groeten,



Drs. M. A. van Hagen

TRANSLATION

Letter (in Dutch) from Pingo Poultry, 5/4/01
Standpunt Nederlandse Pingo Poultry bedrijven in zake GGOs

Point of view of Dutch Pingo Poultry towards GMOs

Dear Mr Ritsema,

In response to your letter of 6th March to several companies from the Pingo Poultry group in the Netherlands (Pingo Poultry Ingredients BV in Goor, Hencu in Cuijk and Pingo Poultry Products in Hedel), I can give you the following message.

As a subsidiary of Nutreco in Boxmeer our leading principle is that we want to conform to the legal regulations. On top of this, we let our policy be guided by the market, or the consumer. After requests from most of our customers, since May 2000 only non-GM soya has been used in the feed fed to Pingo Poultry's chicks.

In very close contact with Nutreco, Pingo Poultry will continue to monitor the debate and new issues.

I hope I have sufficiently informed you about our position.

Yours sincerely,

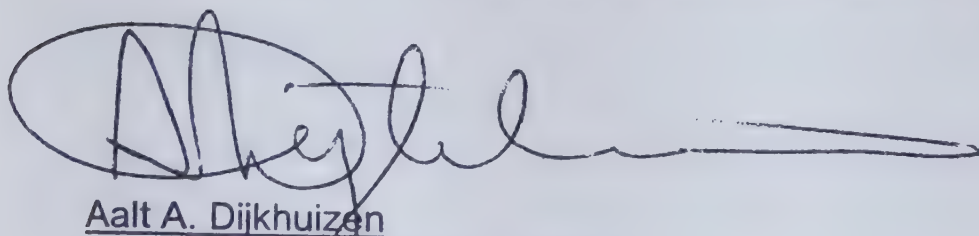
Drs MA van Hagen

Greenpeace Nederland
Drs G. Ritsema
Keizersgracht 174
1016 DW Amsterdam

6 april 2001

Nutreco standpunt inzake gebruik van GGO (Genetisch Gemodificeerde Organismen)

In de GGO discussie met betrekking tot vis- en veevoer laat Nutreco zich primair leiden door de wensen vanuit de markt c.q. de consument. Veiligheid, transparantie, keuzevrijheid van de consument en maatschappelijke acceptatie gelden daarbij als uitgangspunt. Daartoe stelt Nutreco zich actief op de hoogte van lopende discussies en meningsvormingen, en vindt regelmatig overleg plaats met de afnemers van de producten. Nutreco heeft via haar dochterbedrijven in samenwerking met meerdere klanten non-GGO concepten voor voer in de markt gezet. Het non-GGO traject is extern gecertificeerd als onafhankelijk bewijs van bekwaamheid en betrouwbaarheid op dit terrein. In de uitvoering als zodanig spiegelt Nutreco zich aan de geldende nationale / EU wetgeving voor wat betreft definities, maximale toleranties, etikettering en autorisatieprocedures. Wat betreft de genetische manipulatie bij dieren stelt Nutreco zich op het standpunt daar op geen enkele wijze actief bij betrokken te willen zijn.



Aalt A. Dijkhuizen
Corporate Director Food Safety
Member Nutreco Management Committee

TRANSLATION:

Nutreco International BV
P.O. Box 220
5830 AE Boxmeer
The Netherlands

Greenpeace Netherlands
Attn. Geert Ritsema
Keizersgracht 174
1016 DW Amsterdam
The Netherlands

Boxmeer, April 6 2001

Nutreco's point of view regarding GMO's (Genetically Modified Organisms)

In the gmo discussion regarding fish and animal feed Nutreco is primarily led by the market c.q. the consumers wish. Safety, transparency, freedom of choice for the consumer and social acceptance are the points of departure in this issue. Therefore Nutreco actively informs itself of ongoing discussions and opinion forming. We also consult the buyers of our products on a regular basis. Through it's subsidiary companies and in co-operation with it's clients, Nutreco placed concepts for non-gmo animal feed on the market. The non-gmo stretch has been certified externally as an independent proof of capability and trustworthiness in this field. In the execution Nutreco takes example by the current national / EU regulations regarding definitions, maximum tolerances, labelling and authorisation procedures. In regard to genetic manipulation with animals, Nutreco does not wish to be actively involved in any way.

Aalt A. Dijkhuizen
Corporate Director Food Safety
Member Nutreco Management Committee



Greenpeace
Att.: Gunilla Svenberg
Box 151 64
104 65 Stockholm

Angående: Användning av GMO i Sverige

Lantbrukarnas Riksförbund, LRF har fått ett brev från er, där ni ber om svar på tre frågor.

Fråga 1. "Vi undrar om ni har någon policy när det gäller GMO och vad ni har för system för att implementera en sådan policy?"

Svar: LRF har sedan slutet av 1980-talet en policy för användning av genteknik inom lantbruket. Den har utvecklats allteftersom teknikens användningsområden har ökat. Nuvarande skrivning som togs 1996, innebär en restriktiv hållning till genteknikens användning och förutsätter att den bidrar till ökad hållbarhet, fördelar för människor och människors hälsa, minskad miljöpåverkan och bättre djuromsorg. Konsumenters och bönders etiska värderingar ska vara vägledande för användningen. All användning ska ske öppet och genom märkning ska kunden ges tydlig information. Policyn bifogas.

Policyn förankras under framtagningsprocessen och genom beslut på LRF:s stämma. Den implementeras via en Genteknikkommitté, där LRF och branscherna (kött, mjölk, växtodling, fågel, trädgård) deltar.

Fråga 2. "Har ni några garantier från Era medlemmar när det gäller GMO i livsmedel och djurfoder?"

Svar: Inga grödor odlas i Sverige och inget foder tillverkas som innehåller GMO (LRF policy godtar aminosyror och enzymer från innesluten användning). 95 % av all animalieproduktion sker med foder från Lantmännen eller Svenska Foder, som båda analyserar på förekomst av GMO i sina råvaror.

Fråga 3. "Har ni några indikationer om hur era medlemmar ställer sig till GMO frågan?"

Dnr 2000/0484

2000-11-29

Svar: Enligt den senaste gallupen till lantbrukare via ATL, var 90 % av lantbrukarna inte intresserade av att odla GMO.

Med vänlig hälsning
Lantbrukarnas Riksförbund



Annette Hellström
Programchef

TRANSLATION

Swedish Farm Association

2000-11-02

The use of GMO in Sweden

The Swedish Farm Association (LRF) has received your letter, where you ask three questions.

Question 1. "We wonder if you have any policy as regards GMO and what kind of system you have to implement such a policy?"

Answer: LRF has since the end of the 1980 a policy in regards to the use of gene technology in agriculture. It has been developed as the technical field of application has expanded. The current wording which was adopted in 1996, signify a restrictive attitude to the use of gene technology and presumes that it contributes to increased sustainability, benefits for humans and for human health, less environmental effect and better animal care. The ethical values of consumers and farmers shall be guiding for the use. All use shall be open and through labelling the client shall be given clear information. The policy is attached.

The policy is established during the production process and through decisions at LRF assembly. It is implemented though a Gene Technology Committee where LRF and the various industries (meat, dairy, plants, poultry and garden) are present.

Question 2. "Do you have any guarantees from your members when it comes to GMO in food and animal feed?"

Answer: No GMO crops are cultivated in Sweden and no fodder that contain GMO is produced (LRF accepts amino acids and enzymes from confined use). 95 % of all animal production is done with fodder from Lantmännen or Svenska Foder, and both companies analyse for the presence of GMO in their primary products.

Question 3. "Do you have any indication on the point of view of your members on the GMO issue?"

Answer: According to the latest opinion poll (made by the farmers newspaper ATL in January 2001), some 90 % of the farmers are not interested in cultivating GMO.

Kind regards
Lantbrukarnas Riksförbund

Annette Hellström
Program manager

Tesco policy statement

January 2001

NON-GM ANIMAL FEED

Tesco is taking the next step in its previously announced programme to take GM ingredients out of its own brand food products.

Fresh meat suppliers have now been asked to remove GM soya and maize from animal feed used in Tesco's fresh meat supply chain.

The move was confirmed following customer research, which showed more than 76% of Tesco customers in the UK want meat reared on a non-GM diet.

Tesco has been working closely with suppliers to ensure that this demand from customers can be met with minimal impact on the industry. This includes

- * identifying sources of non-GM ingredients for suppliers
- * offering guidance on independent validation of the feed

We have now contacted all suppliers of fresh poultry, eggs, pork and fish -to ask that all rations fed to their animals use non-GM soya and maize by June this year. Suppliers of fresh sausage meat and bacon will be asked to do the same by September and October respectively.

Tesco is talking to other suppliers of meat and dairy products to develop similar arrangements.

This move is a response to customer's wishes. Tesco is not against GM but simply wants to sell customers the products they want.

This policy will be kept under review taking into account customer attitudes and the availability of non-GM grain supplies.

End

Notes

1. In April 1999 Tesco announced that all own brand products would be manufactured from GM free ingredients. This latest move will also apply to all Tesco own label products, including Value Line.
2. Independent validation is required to give customers maximum reassurance and also anticipates the forthcoming EU legislation on labelling of animal feeds.
3. Further information from Tesco UK press office.



News Release

Taping embargo to 08:00
26 January 2001

ASDA BEGINS CONVERSION TO NON-GM ANIMAL FEED

ASDA today announced that, in response to customer demand, it will be asking suppliers to source soya meal for animal feed from non-GM sources. Fifteen months after it removed all GM ingredients and derivatives from own label foods, this latest initiative will result in the introduction of a range of non-GM fed fresh chicken, pork and eggs from this summer.

A recent Phonebus poll of 1007 people commissioned by ASDA revealed that, given a choice, 64 per cent of people would prefer to buy products from animals reared on a non-GM diet and 66 per cent said they felt it was unfair to ask them to pay more. In addition ASDA has received hundreds of customer letters calling for the removal of GM-animal feed from the food chain. Today's announcement is the result of over a year's work that will make this a reality.

ASDA will not be passing the costs on to the customer in the form of higher prices. It will be supporting suppliers with any additional feed costs costs that ASDA expects will reduce when other retailers follow suit.

If the rest of the industry follows ASDA's example, costs incurred by suppliers when segregating one retailer's grain from another's will be dramatically cut.

"The message from customers is loud and clear," said Mike Coupe, ASDA's trading director. "Consumers are becoming increasingly conscious of how the food they eat is produced and want, more than ever, to buy products from animals reared on a non-GM diet. If other retailers follow suit, non-GM animal feed will become the industry standard and the premium charged for it will diminish, as will the costs to retailers and producers."

More ...

ASDA Stores Ltd, ASDA House, Southbank, Great Wilton Street, Leeds, LS11 5AD
Press Office Telephone 0113 241 7829 Press Office Facsimile 0113 241 8015

Part of the Wal-Mart Family of Companies

ASDA begins the conversion to non-GM animal feed - page 2 of 2

ASDA technologists have spent the last year forging links with soya growers, UK distributors and laboratories to create a non-GM supply base, distribution network and quality assurance scheme that has the potential to meet the needs of all UK retailers.

The soya will be tested by a rigorous quality assurance scheme (Hard IP[®]) conducted by independent laboratories when it is planted, harvested and then transported to the UK.

In addition the chickens, laying hens and pigs reared for ASDA on non-GM feed will, in time, be fed a non-GM diet for their entire life and not just in the final months before slaughter - a practice that, technically, produces non-GM fed meat.

-ends-

Further Information:

Rachel Fellows, 0113 241 8857

Out of hours, 0113 243 5435

Editors' Notes ...

- Chickens, pigs and laying hens reared for ASDA will be fed on a non-GM diet from the beginning of June and non-GM fed ASDA Brand fresh chicken and eggs (including Smart Price), will be available from this Summer. A range of non-GM pork will be available from the autumn.
- ***Hard IP** - ensuring soya is produced to Hard IP standards (CERT ID or BRC/FDF standard) involves validating the procedures on the farm and testing the soya both at source (rapid strip tests) and more thoroughly in an independent laboratory. A positive result on either of these tests would lead to the grain being segregated from the batch destined for ASDA suppliers.
- **Soft IP** - soya that is produced to Soft IP standards is not tested in either at source or at a lab. It is assumed that the region in which it is grown is free from GM crops.

ASDA Stores Ltd. ASDA House, Southbank, Great Wilson Street, Leeds, LS11 5AD
Press Office Telephone 0113 241 7829 Press Office Facsimile 0113 241 8515

Part of the Wal-Mart Family of Companies



Traditional Goodness

PRESS RELEASE

Grampian to Begin Production of Non-GM Animal Feed

Grampian Country Food Group announced today that it is to begin manufacturing all of its poultry and pig feed with non-GM soya by June 2001. This decision has been taken in light of the recent requests by several of our retail customers to remove GM soya from our animal feeds.

Commenting on this announcement Alban Denton, Grampian's Feeds Division Managing Director said; "We have been in negotiations with our supply base for some time to source the volume of non-GM soya we require for our five feed mills. With the support of our retail partners we are now in a position to offer a non-GM poultry and pig feed with the guarantee that it has been sourced from a hard IP scheme. Consumers will have the confidence that the livestock fed by Grampian will consume a non-GM diet."

By making this decision Grampian Country Food Group is the first major UK animal feed manufacturer to produce non-GM animal feed in all its mills in response to both our consumers and retailer requests.

Where feed is sourced from third party supplies Grampian will co-operate closely with these farmers and feed compounders to assist them in sourcing non-GM soya to the same exacting standards.

2nd February 2001

- ends -

For further information:

Alasdair Cox
Group Corporate Marketing Manager
Grampian Country Food Group
Tel: 01224 696113
Mobile: 07967 677012

Supplementary Notes:

1. Grampian Country Food Group produces 3.8 million chickens, 24,500 pigs per week. To support these activities the Feed Milling Division produces 20,000 tonnes of compound poultry and pig feed per week.
2. Hard IP Non-GM Soya: Grampian Country Food Group have procedures in place throughout the supply chain to form a rigorous quality assurance scheme, ensuring Identity Preservation. These detailed procedures are backed up with PCR tests, any positive results would lead to rejection from Grampian's supply chain. The whole process is independently validated by an accredited auditing company.

Embargoed until 12pm midnight Tuesday 28th August

Tegel goes GM free

Tegel, New Zealand's largest poultry company, has announced that its chickens will soon be fed with feed sourced entirely from non-genetically modified crops.

Like other large NZ chicken producers, Tegel's feed has until now included soymeal which contained a proportion of meal from GM soybeans. The company recently reached an agreement with a US based feed supplier which will ensure a continual supply of soymeal sourced from non-GM crops.

Tegel chickens have never been genetically engineered and this agreement means that all Tegel chickens will soon be eating feed sourced entirely from non-GM crops.

Tegel MD, Peter Lucas says the decision was made in response to consumer concerns about GMOs and is consistent with Heinz worldwide policy. "Consumers in New Zealand have voiced their fears to us and we have been able to respond to these worries in a practical way. Consumer research that we carried out showed that almost 60% of consumers were concerned about New Zealand chicken being fed from GM crops and over 75% would prefer their chicken not to be fed GE feed."

Mr Lucas said the decision was one they had been working towards for some time. "Up to now, however, we have been unable to find a reliable source of soya from non-GM crops. It has taken time to find a reliable supplier and to ensure a consistent supply of product to meet our needs".

"There are always concerns when you haven't worked with a supplier before so we are working with our existing American supplier to establish a system which will assure supplies from non-GM soya crops. Our priority is that we have an ongoing and consistent feed supply that is of premium quality."

Mr Lucas said there are no known problems with chicken meat. "While our best advice is that the GM soya has no effect on chicken meat at all, our consumers have expressed their concerns, including the possible environmental effects of the large scale farming of GM crops, and we have responded accordingly."

The response to the move from Tegel's key customers has been extremely positive. Mr Lucas said that KFC, one of Tegel's largest customers, and the grocery trade have been very supportive.

The aim is to start feeding all Tegel chicken soya from non-GM crops in October this year so that by Christmas all fresh Tegel chickens sold will only have been fed on feed sourced from non-GM crops.

Tegel as New Zealand's leading poultry supplier is delighted to be taking this initiative that is preferred by 75% of consumers.

Ends

For further information, please contact Peter Lucas, Managing Director, Tegel Foods, 379 1700.

*Released on behalf of Tegel Foods by Network Communications – Chris Lydon.
Phone (09) 306 5811, (025) 822 296.*

Asia's sensitivity over GMO worries US soy trade

September 4, 2001 6:11am

Source: Reuters

By Sambit Mohanty

KOTA KINABALU, Malaysia, Sept 4 (Reuters) - The growing sensitivity of some Asian nations towards gene-altered soybeans and China's new genetically modified organisms (GMO) rules are increasingly causing concern among the U.S. soy trade, an American Soybean Association (ASA) official said on Tuesday. U.S. farm trade, just recovering from last year's controversy surrounding its gene-spliced StarLink corn, is working hard to ensure that Asian buyers get exactly what they want -- GMO or non-GMO products, said Corwin Fee, vice president and chairman of ASA's international marketing committee.

"On the issue of Roundup Ready soybeans, we are definitely concerned," Fee told Reuters in an interview on the sidelines of a Southeast Asia Soy Buyers Conference. "We are willing to work with them (Asian buyers) even though they have been approved for food. But once again, if it is still a customer preference not to involve them, there has to be a way of communication and a way to rectify the problem," he added.

Last month, Belgian scientists discovered gene fragments in Roundup Ready soybeans, grown from seed developed by biotechnology giant Monsanto Co. The soybeans are spliced with a bacterium to make them resistant to Roundup herbicide. Although the European Commission has said it had no scientific evidence that these beans - which environmental group Greenpeace wants banned - posed a health risk, some Asian buyers are not completely convinced. "South Korea has picked up a lot of concerns banished by the EU but we are willing to address that," Fee said.

He said currently the demand for non-GMO soybeans in Asia was more than GMO beans, which echoed views of some South Korean buying groups who have said they would be stepping up non-GMO bean purchases this year. Fee said the relatively higher premiums on non-GMO beans had prompted him to cut down his own GMO soybeans production back in the U.S. and instead concentrate on producing more non-GMO beans. "I as a farmer last year grew all Round Up Ready soybeans. This year, I have cut down on that. Probably it will be the lowest amount of Round Up ready beans I will be growing in several years," Fee said. "It is mainly profit-oriented."

Fee said the farm price of non-GMO beans was 30-35 cents a bushel, which was about 8-9 percent higher than GMO bean prices. "In previous years, customers did not understand that it costs more to get these products (non-GMO beans). They have finally come to realise that," he said.

CHINA'S GMO RULES

Fee added that the latest set of rules announced by China on GMO had bogged down U.S. soybean sales to China to some extent. "We are a little concerned about the regulations and laws that have been passed by China - that no one seems to have a clear understanding of," Fee said. "But we are working with them to get a better understanding of what exactly they want." China was on a soybean buying spree in the first half of 2001, when imports rose 69.2 percent year-on-year to 5.97 million tonnes. Nearly three-quarters of it came from the United States.

China, U.S.'s biggest soybean buyer, announced the rules in early June but the rules fell short of implementation details which traders say are not expected until after October. Asian trade sources say **China has stepped up buying soybeans from South America recently.** "There a little bit of hesitancy, until we have a clear understanding of what exactly they (China) expect, before we send vast volumes of soybeans there," Fee said. According to U.S. Department of Agriculture, 68 percent of U.S. soybeans are genetically modified. Trade sources say about 90 percent of Argentine soybeans are genetically modified. Brazil has said its soybeans are GMO-free, but trade sources believe GMO soy has been planted in southern Brazilian states. ^ REUTERS@

The Tokoyo Grain Exchange started trading non-gmo soybeans today.

DATE: June 1, 2000

Non-GMO Soybean futures launch

The partial amendments of the Business Regulations and Contract Terms or Brokerage that had been approved at the Extraordinary General Meeting of Members held on March 27, 2000, received authorization from the Ministry of Agriculture, Forestry and Fisheries on April 21, 2000 and shall come into effect from that day. The main points of the amendments are as follows:

1. The present listed U.S Soybean futures contract shall be separated into U.S. Soybeans which are GMO soybeans along with a mixture of GMO and non-GMO soybeans (please see U.S. Soybean futures *1) and a new futures contract-Non-GMO Soybeans (please see Non-GMO Soybeans*2).

Specifications of the U.S. Soybean futures contract and the Non-GMO Soybean futures contract

*1 The amended U.S. Soybean contract shall come in effect on April 26, 2000 from the April 2001 contract month which deliverable grades will include the states of Iowa, Illinois and Wisconsin.

*2 The new Non-GMO Soybean contract will be launched on May 18, 2000 starting with the Dec. 2000, February 2001 and April 2001 contract months.

2. To prepare for the launch of the Non-GMO Soybean futures contract, the trading hours for Raw Sugar futures and options will change.

Here is a link to their specifications:

http://www.tge.or.jp/english/Non_GMO.htm#nongmo

Here is the market page: NOTICE THE difference in volume between the non-GMO and regular soybean market volume.

<http://www.tge.or.jp/english/marketprices.html>

List of traders:

http://www.tge.or.jp/cgi-bin/daily/daily_trade.cgi?e+ds_hiki_ng.dat

http://www.tge.or.jp/cgi-bin/daily/daily_fu_trinf.cgi?e+ds_uchi_ng.dat

Reuters - Jae Hur

DATE: June 1, 2000

Consideration of the Edible Soybean futures contract

From April 1, 2001, mandatory labeling of processed soybean products that contain GMO will be introduced, thus the results of deliberations of Tokyo Grain Exchange, Chubu Commodity Exchange

Nagoya), Kansai Commodity Exchange (Osaka) and the Kanmon Commodity Exchange with respect to the edible Soybean futures contract are as follows:

1. Looking at the soybean market, we must consider the launch of non-genetically modified organisms non-GMOs) as a new futures contract as soon as possible. The non-GMO futures under consideration shall be based on U.S. No 2 Yellow Soybeans for which standards have been established by USDA and shall be officially certified to be handled as identity preserved (IP) products.

The time when the contract be launched, the number of delivery months, the standard grade and deliverable grades and other specifications shall be determined at a later date taking in account of the mandatory labeling of processed soybean products from April 1, 2001, the establishment of IP certification system and the production of non-GMO soybeans (Especially the Indiana, Ohio, Michigan produced soybeans) in the United States.

2. Where the situation of edible soybean market is still fluid and the price relationship between the GMO soybeans and the non-GMO soybean is extremely unpredictable, the present IOM contract shall continue to be launched as a GMO soybean contract in addition to a proposed non-GMO soybean contract.

3. We will deliberate if there is a necessity to relaunch the domestically produced soybeans and Chinese soybeans futures contracts. Domestically produced soybeans and Chinese soybeans vary in each producing region thus there are opinions that relaunching these two futures contracts are still too premature so we shall continue to deliberate on these two products.

4. The four exchanges shall proceed to hold meetings to discuss the above matters and receive opinions from their members and shall keep the members updated.

How to get non-GM supplies

Suppliers of bulk non-GM soya and maize

Bunge Alimentos SA

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<http://www.ceval.com.br>

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Coinbra

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Cámara Paraguaya de Exportadores de Cereales y Oleaginosas (Cereal and Oilseeds

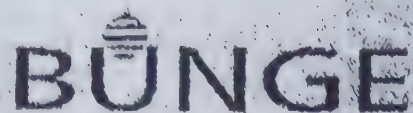
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See also list at

www.amsoy.org/step/library/nongmlist.htm

See also the Soya BlueBook at www.soyatech.com

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 Fax: 01275 851833



STORES:

Raw Materials Buyer

September 21, 2001

BRAZ HIPRO	BRAZ HIPRO	Braz Flts	32% Suns
TILBURY	TILBURY	Tilbury/Ipswich	TILBURY
Non-GM with Full IP Traceability	PCR 1%		
Sept/Oct 167.00	Sept/Oct 164.00		Sept/Oct 100.00
			Nov/Dec 98.00
Nov/Apr 167.00	Nov/Apr 164.00	Nov/Apr 165.00	
May/Oct 153.00	May/Oct 150.00	asa May/Oct 142.00	
	BRAZ HIPRO	A/O HIPRO	
	Ipswich	sellars option	
	Teignmouth & Hull	Tilbury/Ipswich	
	Non-GM with Full IP Traceability		
	Sept/Oct 167.00		
	Nov/Apr 168.00	Nov/Apr 160.00	
	asa May/Oct 155.00	asa May/Oct 148.00	
EX-STORE PRICES			

CARREFOUR LEADS PURCHASE OF NON-GMO BRAZIL SOY

February 22, 2000 Reuters

PARIS -- Gilles Debrosse, director of fresh products at French retailer Carrefour, was cited as saying that a pool of French pork and poultry farmers and animal feed makers led by retailer Carrefour has signed a deal to buy 180,000 tonnes of non-genetically modified soybeans from Brazil, in support of Carrefour's policy of removing genetically modified organisms (GMOs) from its products.

The story says Carrefour has scrapped GMOs from hundreds of own-brand goods ranging from breakfast cereals to confectionery amid protests from environmental activists and it aims to remove GMO ingredients from all its products by 2002.

Debrosse was quoted as saying, "Carrefour, faithful to its principles of precaution and prevention, is responding to the expectations of consumers who do not wish to eat GMOs, directly or indirectly, and is anticipating regulations on GMOs in animal feed."

Carrefour has hired inspection company SGS to supervise production, crushing and shipment to ensure the Brazilian grain is properly segregated to prevent any accidental contamination, said Debrosse. Soybeans from 850 farmers in the central state of Goias will be taken by truck to a dedicated crushing plant in the town of Jatai owned by Coimbra, part of the Louis Dreyfus group.

The plant will produce 25,000 tonnes of soymeal pellets per month, which will be carried by road and rail to the port of Vitoria in Espirito Santo state, from where they will be shipped to St Nazaire in northwest France by importer Soules-Caf.

The story adds that Buyers will pay a premium of 125 francs per tonne over the current market price of 1,000 francs per tonne, said Debrosse. The impact on retail prices would be negligible.

Markets: GM fears fuel Brazil export bonanza

June 7, 2001 1:17pm

Source: Lloyds List, June 06, 2001, Page 4

JUSTIN STARES IN SAO PAULO

As a GM-free producer, Brazil has brought buyers flocking with a grain export boom in tow.

BRAZIL'S grain exporters are enjoying an unprecedented boom due to rocketing demand for organically grown produce.

Mad cow disease, continuing concerns over genetically modified crops and the US Starlink scandal have brought scores of buyers to Brazil in search of naturally grown, unaltered corn and soybeans. Brazil is one of the only producers to specialise in GM-free produce. For the first time in 18 years, Brazil will this year become a net exporter of corn. Paranagua port, in the corn-rich southern state of Parana, is predicting that corn exports will reach 3m tonnes this season. Last year, there were no corn exports at all through the port. Almost the entire harvest was consumed on the domestic market.

'Things could not possibly be going better,' said Luis Ivan de Vasconcellos, technical director with the Paranagua port authority. 'This season there has been a great crop of both corn and soybeans. Importers have been looking for replacement meat in Europe because of mad cow disease. Many buyers are also still adverse to genetically modified crops.' Barge operators on South America's Hidrovia river system have seen corn export volumes leap by 50% to 60% this year compared with the same period in 2000.

'The corn boom that hit the market in the first quarter as well as the river was a surprise to Mercosur producers, traders and transport concerns,' said one barge operator. 'The Starlink issue in the US has increased corn shipments to Japan in particular.' Japan and South Korea have restricted imports of genetically modified Starlink corn on health grounds.

More than 300 types of US food were recalled last year because the Starlink variety, approved only for industrial use and as livestock feed, got into the human food chain. 'We have already seen corn exports of 1.18m tonnes,' Mr de Vasconcellos told Lloyd's List. 'And we think we will see another 1.5m tonnes this year. We don't expect the export season to stop at all this year.' Paranagua, one of Brazil's principal grain export ports, has also seen significant increases in soybean and soybean meal exports this year.

Between January 1 and May 20, the port exported 2.35m tonnes of soybeans compared with 1.54m tonnes in the same period last year. Soybean meal exports were 1.76m tonnes for the period, compared with 1.49m tonnes last year. The port authority director said sufficient tests on were carried out to ensure exports were free of genetically modified organisms. There have been reports of smuggled GM seed entering the Brazilian market from Argentina, where its use is not restricted.

Recently released figures for the port of Santos confirm the arrival of the export boom. Soybean exports in March leapt 68% to almost 700,000 tonnes from March last year. Soybean meal export volumes were up almost 15%, according to Santos port authority Codesp. Bulk export operations at both ports are heavily dependent on uninterrupted electricity supplies.

Because of exceptionally low reservoir levels and Brazil's high dependence on hydroelectric power, electricity is due to be rationed from the beginning of next month. However, Paranagua port claims it will avoid the worst of the energy crisis due to its proximity to the giant Itaipu hydroelectric facility. Santos, too, claims it will be immune from the effects of the energy crisis because it has its own dedicated

http://hooynews.hooyers.com/fp.asp?layout=displaynews&doc_id=NR200106076704

Bunge opens assured non-GM supply

Agricultural Supply Industry, vol.31, no.31, 3/8/01

International oilseeds crusher and feed materials trader Bunge can now supply independently audited and fully traceable Brazilian non-GM hipro soyameal to the UK market.

The soya is processed at the company's Luis Eduardo Magalhaes plant in Brazil, and imported via its UK facility at the Port of Tilbury. All stages of the crop's growth, processing and shipment are carried out to the SGS non-GMO Soyabean Certification and Control programme, which is independently audited by SGS inspectors and recognised by UK supermarket chains Tesco and Asda.

SGS says the programme is designed on a risk assessment basis, and a series of protocols covers the audit, inspection, testing control and analysis of the different stages of the process of soya production, logistics, storage and shipment. The programme breaks down into five stages. SEEDS TESTING, where seed lots are randomly tested for GM on farm before sowing, is followed by CROP MONITORING, where growing crops are regularly inspected, and leaf samples analysed for modified DNA.

At the CRUSHING PLANT, a separate non-GMO crushing line has to be in place, with a series of critical control points to eliminate possible sources of contamination. The LOGISTICS STANDARDS demand regular checks and samples from local elevators and vehicles, while the final SHIPMENT CONTROL stage checks empty vessels, and supervises loading. Apart from its international reputation in the auditing field, SGS claims credibility at all stages is backed up by its laboratory in Brazil, which is approved by GAFTA, FOSFA and OAA.

Bunge says the material will be available in other EU markets, especially France, Belgium and Switzerland. While the feed material will carry a premium, it says this should be compared with alternative supplies of Brazilian soya of the same specification, and not to the commodity market of any origin.

Legal situation of GMOs in Brazil

Analysis / background by David Hathaway (consultant, Brazil), 28/7/01

Brazil's Biosafety Law was passed by the National Congress in 1994 issued in January 1995. It grants authority over genetically-engineered organisms to a National Technical Biosafety Commission (CTNBio), made up basically by representatives of several federal ministries, government-named independent scientists and industry (currently represented by Syngenta). The law also gives the environment and health ministries final power to actually authorise any activities involving GMOs (from research to release), but 6 years later these two agencies are only now beginning to prepare to take on their authority in this area. This vacuum in the exercise of authority over biosafety matters is the basis for much of the legal confusion that has led courts, so far, to recognise that GMOs have not been sufficiently assessed to warrant their commercial release. Brazil's 1990 Consumer Defence Code also calls for labelling of all products to inform final consumers of relevant characteristics they have a right to know about, and this right has also been successfully invoked in court.

Three federal court decisions are now in effect in Brazil:

- The first is specifically on the commercial release of RR soybeans. It is an injunction (*ação cautelar*) issued by a first-level Federal Court in Brasília in 1999 (in a suit filed in 1998 by Greenpeace and the CI-affiliated Consumer Defence Institute IDEC), which was upheld by the second-level court of appeals (Regional Federal Court) also in Brasília in June 2000. The government's attorney general has yet to file an appeal of the regional court's ruling to the Superior Court of Justice. That injunction requires that at least an environmental impact study be carried out and rules on GE-food labelling be instated before any commercial release can be approved.
- The second decision is the sentence issued in June 2000 (the same month when the injunction was upheld by the regional court) by the same first-level judge on the core suit brought by Greenpeace and IDEC against the government's attempt to release RR soybeans. It goes even further than the above-mentioned injunction, by requiring that the National Biosafety Commission (CTNBio) stop issuing any decisions at all on GE crop releases (not just RR soybeans), until the government institutes new rules for assessing human-health and environmental impacts, as well as creating rules for labelling. (Labelling rules for packaged GM food, however weak they may be, were issued by federal decree on July 19, 2001.)
- The third and most recent decision is a preliminary restraining order (*liminar*) issued in April 2001 by another first-level judge in Brasília, in response to a suit brought by the federal Public Ministry (an independent public attorney's office) to suspend all field tests of "biopesticide" GMOs (like the EPA's responsibility for insecticide plants) until Brazil's pesticide (agrotóxico) legislation is enforced, particularly by providing a Special Temporary Registration for field trials of any new and previously-unregistered pesticide.

All of these add up to what has been termed a "judicial moratorium" on the commercial release of GMOs (and now on most field trials, since even herbicide-tolerant plants can potentially be classified as coadjuvants of pesticides) in Brazil. There is no practical prospect that all of these decisions may be overturned by the government and the companies in the coming months, at least for the next soybean planting season, which will begin in October.

There was also confusion last year (2000) over the import of corn from Argentina, mainly for poultry feed, due to a shortfall of the national corn crop. Greenpeace did testing and identified Bt corn in the shipments, many of which were embargoed by local judges in different ports, since GMOs and products thereof – under the 1995 Biosafety Law – can only be imported with specific authorization by the CTNBio and the responsible ministries. The Agricultural ministry quickly arranged for the CTNBio to rubber-stamp its own authorisation in mid-2000, and for a few months in the second semester there were ongoing conflicts around several Brazilian ports involving NGOs, poultry producers, public prosecutors, local and federal judges. As the practical upshot of many intricate legal battles, thousands of tons of Bt corn were actually imported ("solely as feed", but who knows?), and then this year Brazil finally increased its corn harvest so much that it is now exporting millions of tons of non-GE corn to Europe and Asia.

Greenpeace and IDFC have also taken the initiative to have a range of processed-food products tested for GM content, and have identified several products on supermarket shelves (imported or with imported components) containing RR-soybean material. Little has come of these denunciations in practical terms, although a few cities have ordered such products removed from stores, but press coverage and the impact on public opinion has been significant.

Late in December 2000, the government issued a special kind of decree (a "provisional measure") that actually amends the 1995 Biosafety Law. Congress may modify or reject this measure, but for the time being it gives the Agriculture Ministry the power to authorise the marketing of GM crops. While it does not explicitly repeal the final authority of the Health or the Environment Ministries with regards to approval of all GMOs or GM products on health and environmental grounds, the Agriculture Ministry now claims that it DOES, and has set its sights on immediate and final approval on its own. (Internal strife is rampant within both the Health and Environment Ministries right now, over whether or not to submit passively to this eminently economic decision by Agriculture.) As for State government policies and actions, Rio Grande do Sul does in fact maintain its anti-GM crop policy, and it has effectively stopped most federal-authorized GE crop test plots in the State. Yet the State has been unable to (a) pass a State Law to effectively ban GE crops if or when federal commercial releases may be authorised, or (b) effectively control the widespread illegal planting of Monsanto's RR-soybean seeds smuggled in from Argentina, on what is likely to amount to hundreds of thousands of hectares in the State.

Meanwhile, three other States (Santa Catarina in southern Brazil, Mato Grosso do Sul in western Brazil and Pará in the Amazon region) have passed their own State laws giving their governments control (through newly-created State Biosafety Commissions) over all activities involving GMOs, from laboratory to field trials to commercial release, of food, medicines, products thereof and what-have-you. Now in the year 2001, they are each setting up their own State biosafety commissions (with social participation by scientists, farmers, consumers, etc.). This may be of great importance in the future, if and when the federal government is ever successful in its drive to authorize commercial releases. These three States may also try to exercise some control or oversight over laboratories and field trials involving GMOs.

That is what exists today in terms of real and potential restrictions on the release of GMOs in Brazil. There is a variety of bills in the National Congress (18 in the lower House and three or four in the Senate) which could lead to more restrictive federal legislation on GMOs. Most of them deal with labelling, and there are also a few proposals for some form of moratorium. Meanwhile, there are also many initiatives either underway or recently passed in other State Assemblies and City Councils (while federalism is weaker here, Brazil still looks a lot like the US in this institutional dimension) with bills of law proposing the prohibition of GMOs, moratoria on their commercial release, labeling and other restrictions on sale.

S.Korea AFMC says buys 25,000T US non-GM soybeans

SEOUL, 4th Sept 2001 (Reuters) - South Korea's state-run Agricultural and Fishery Marketing Corporation (AFMC) bought 25,000 tonnes of U.S. No.1 non-genetically modified (non-GM) soybeans from Cargill, an AFMC official said on Tuesday. But it passed on another tender to buy 20,000 tonnes of edible non-GM soybeans due to high prices, while Toepfer had offered the lowest price for the passed tender, the official said.

Details for the purchase are as follows:

TONNE	PRICE(C&F/T)	SHIPMENT	ARRIVAL/PORT
25,000	\$230.88	Oct 22-Nov 10 (US Gulf) Nov 6-25 (Pacific Northwest)	Dec 15/Inchon

Details for the passed tenders are as follows:

TONNE	LOWEST(C&F/T)	SHIPMENT	ARRIVAL/PORT
20,000	\$244.22	Oct 17-Nov 5 (US Gulf) Nov 1-20 (Pacific Northwest)	Dec 10/Inchon

((Cho Mee-young, Seoul Newsroom, +82 2 3704 5651, fax +82 2 720 5777, meeyoung.cho@reuters.com))

Availability of non-GM soya and maize from the USA

AN OVERVIEW

Recent years have seen significant growth in the production of speciality grains in the USA, for quality food or specialist industrial uses. Initially, non-GM crops were supplied through these channels, but now non-GM supply has moved onto a much larger scale.

In August 1999, ADM, the second largest US exporter of soya and maize, which handles up to 30% of US exports, began requiring its suppliers to segregate GM from non-GM crops. Other exporters specialise in non-GM, such as Zen-Noh (the third largest US exporter) and the smaller Consolidated Grain & Barge and Clarkson Grain.

A survey of the 2000 harvest, commissioned by seed company Pioneer Hi-Bred International, found that 25% of elevators [silo depots] said they would separate GM from non-GM maize, and just over 20% soyabeans. Furthermore, 12% of elevators would not accept GM soya at all, and nearly 20% wouldn't take GM maize – meaning that these elevators were dedicated to non-GM¹.

In 2000, 1.5 million acres of STS (Synchrony-treated) soyabeans were grown under contract through DuPont Speciality Grains, representing 2% of US plantings². STS beans are developed to be resistant to DuPont's Synchrony herbicide, but through selective breeding rather than genetic modification. In these cases, Consolidated Grain and Barge, ADM and Protein Technologies International (a DuPont subsidiary) signed contracts with both growers and elevators, specifying the production practices required (keeping seed receipts, cleaning equipment, training staff, applying clear segregation or IP systems etc).

The US Grains Council's Value Enhanced Grains survey (published July 2001) found that in the 2000 harvest, 7% of the volume of maize passing through the elevators it interviewed was segregated non-GM.

Meanwhile, state crop improvement associations are providing support and advice to their farmers in implementing segregation or identity preservation (IP), led by Illinois, Indiana and Minnesota. Consultancies are springing up to work with farmers, elevators, processors and exporters – such as IdentityPreserved.com, launched in July 2001. Even the pro-biotech American Soybean Association now has a non-GMO programme.

To date Europe has mostly obtained its non-GM soya supply from Brazil. But much has changed in the last two years in the USA – and companies would be well advised to look there for supplies too.

¹ Survey of 1,200 elevators throughout the corn belt. Pioneer Hi-Bred International, 'Elevator biotech grain acceptance survey - 2000'

² Information Systems for Biotechnology, August 2000, ISB News Report, ' "New" Cargill remains committed to biotech', by Tracey Sayler

Introduction to the Indian soya industry

Taken from notes of visit of SOPA (Soya Producers' Association) delegation to Europe, May 2001

India is one of the leading oilseeds producing countries in the world, having largest number of commercial variety of oilseeds, namely groundnut, rape/mustard, soybean, sesame seed, sunflower, niger seeds, castor, linseed, copra, cottonseed, etc. Oilseeds constitute the second largest crop after foodgrains.

The Soybean Processors Association of India popularly known as SOPA is the apex body of the Soybean industry in India having 650 members scattered throughout the length and breadth of the country, including soybean processors, farmers, brokers and other trading members related to soy industry. One of the major activity of SOPA is to promote export Indian Soybean Meal and Products to overseas markets.

In order to promote export of Non-GMO Indian soymeal and other Value added products of soy, SOPA in association with the Ministry of Commerce, GOI sponsored a six member trade delegation to the EU countries namely Italy, Spain, France, Germany and the UK from May 12 to May 22, 2001.

India enjoys better advantage for export of soymeal to Europe over its other competitors due to:

- Non-GMO Indian Soybean
- Protein rich Indian soymeal
- Foot and Mouth disease
- Mad cow disease
- Ban on import of MBN by most of EU countries
- Soymeal dominates the use of proteins in the EU animal feed sector, accounting for 53% of total protein material used.

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Foreign Agricultural Service

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Paraguay

Biotechnology

Paraguay Renews GMO Planting Restrictions

2000

Approved by:

Philip A. Shull

U.S. Embassy

Prepared by:

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Report Highlights:

Paraguay has recently renewed its prohibition on the commercial use of genetically modified organisms, especially soybean planting seed. This action results from concerns that these products, which play a key role in generating foreign exchange, could be denied entry into world markets, especially Brazil, which takes the majority of Paraguayan output.

Includes PSD changes: No
Includes Trade Matrix: No
Unscheduled Report
Buenos Aires [AR1], PA

Paraguay Renews Prohibition on GMOs

As a follow-up to two resolutions promulgated by Paraguay's Ministry of Agriculture (MAG) in August 1999 which restricted planting for the 1999/2000 market year, the use of genetically modified organisms in Paraguay's agricultural sector has once again been prohibited for 2000/2001. The resolution is signed by the Minister of Agriculture and reflects the government's concern over the negative effect that these products would have on its export trade.

Specifically, by virtue of resolution #397, planting for sale or use in either the domestic or international market of any genetically modified organism for the 2000/2001 crop year is not allowed. Thus, any GMO soybean harvested from the 1999/2000 crop (some estimate that about 5-10,000 hectares of GMO soybeans were planted in 1999/2000) cannot be used for planting during the next crop year, nor can biotech planting seed be imported for commercial purposes. Any GMO seed that exists must be disposed of according to Ministry of Agriculture (MAG) guidelines which state that the product must be milled into oil and meal or exported. Although the resolution's article #1 prohibits the use of all GMOs, the importance of soybeans for the country is reflected in Article #2 which specifically restricts their planting. The MAG will be responsible for control, and has been receiving training in the relevant testing procedures.

In general, Paraguay does not oppose the concept of biotechnology, a viewpoint supported by the fact that the resolution applies only to commercialization of GMOs and not to scientific or research purposes. As their knowledge of transgenic products increases over time, Paraguayan officials state that they will have a more refined scientific basis and more background information for making decision for the next campaign.

Some sectors of the Paraguayan soybean industry clearly remain concerned about the potential for rejection of GMO products in world markets, and the reactivation of this prohibition is a step taken by the government to allay concerns over possible economic damage to a sector that plays a critical role in generating foreign exchange. The measure was also taken in order to control the illegal access of non-authorized GMO seeds from Argentina into Paraguay.

Contrary to some private sector officials who are strongly opposed to this measure, others believe that the negative commercial impact related to the prohibition should not be significant, as the GMO seeds entering illegally into Paraguay are not well adapted to local weather and soil conditions, lowering the quality and yield of crops which negatively impacts competitiveness.

For further background information, please see GAIN Report PA9014 Paraguay Restricts Planting of GMOs.

Brazil Minister of Agriculture

CC
Brasilianska Ambassaden
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Stable need for non-genetically-modified soybeans

All consumers, consumer organisations and food traders today demand full transparency and segregation of genetically modified food. Most of them also demand GMO – free food. This is the background for the Swedish compound feed industry to buy soybeans mainly from Brazil or meal derived from Brazilian beans. Brazil can offer soybeans, which have not been genetically modified. Sweden imports in total 350 000 tonnes of soy-meal per year (1998). Out of that 250 000 tonnes are imported by The Swedish Farmers Purchasing and Marketing Association (Lantmännen), an important part of The Federation of Swedish Farmers

We have understood that Monsanto has applied for approval for growing Roundup Ready Soybeans in Brazil. We are following the process in Brazil with great interest. Whatever the result of the approval process will be, the Swedish farmers want to continue to buy soybean products produced without genetic engineering.

We would like to stress that it is important for us today and tomorrow, to have reliable producers who can deliver non-GMO soybean products. Therefore we welcome a decision that maintain Brazil as a GMO - free area. We are also interested in mandatory documentation on the identity of soybean products as GMO or non-GMO. That also requires that conventional and GMO soybeans are kept segregated.

Yours Sincerely

Federation of Swedish Farmers

Olle Hakelius
Vice president and chairman in LRF Gene Technology Committee

Enclosed: The LRF Policy for Gene Technology

Richard Hardy
GIPSA/USDA
1400 Independence Avenue, SW Room
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DC 20250-3650

Zurich, February 28, 2001

The the position of Migros in GMO and non-GMO crops

Migros Group is the most important company in retail business of Switzerland with a strong focus in food Industry. Migros' own industrial enterprises have continued to strengthen its market position both within and outside the Group. The Migros Industry companies imports crops and several semifinished food products from US production. It is tradition for Migros that food safety has always highest priority.

On generic food: Migros is taking all possible steps to ensure that the food it sells contains no GMOs (genetically modified organisms) which exceed the minimum amount of non-preventable impurities (1%). Once the sourcing situation makes this no longer feasible, Migros will then declare this product openly and transparently. In such cases, Migros always intends to offer a GMO-free alternative which customers can switch to.

Migros has, however, intensified its efforts in the livestock feed sector, as its intention is to avoid any GMO feed. It has achieved this within organic production systems.

This means that Migros is responding to existing consumer scepticism in Switzerland about GMOs and demands from ist business partners in the USA:

Product segregation of the GMO and non-GMO crops

Identify preservation and declare GMO crops openly and transparently (tracability).

Federation of Migros Cooperatives

Economic politics

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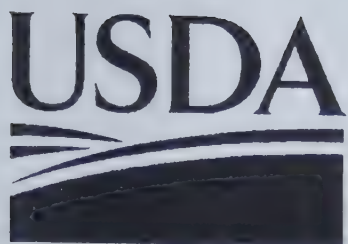
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GRAIN TRANSPORTATION REPORT

Agricultural Marketing Service
United States Department of Agriculture



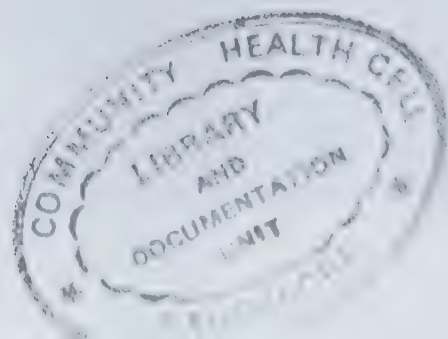
FEBRUARY 15, 2000

Japan Requires U.S. Grain Segregation, Arranges Deal With Brazil.

According to a Japanese official, the U.S. will need to segregate genetically modified (GM) grain from conventional varieties in order to maintain its competitive presence in the Japanese market. Speaking at a recent U.S. Grains Council meeting, Tatsuo Hagiwara, manager of Zen-Noh of Tokyo, stated, "If America appears not to be able to supply non-GMO corn, Japan might go to China or Argentina," two U.S. competitors reportedly promoting the availability of non-GMO crops. U.S. corn sales to Japan accounted for approximately 90 percent of Japan's total 1998 corn imports of 15.7 million metric tons. In addition, based on USDA estimates, Japan is expected to purchase \$9 billion in farm products during this fiscal year, ending September 30. Prompted by concerns of the Japanese consumer, many companies such as the Kirin Brewery Company, Japan's largest brewery, and Sapporo Breweries, Ltd. have already decided to stop using GM corn. Consumer concerns also led to labeling requirements by the Japanese government for GM crops and food products. However, knowing that Japan is devoting \$7 billion to its own biotechnology research this year, U.S. Grains Council representatives appear confident that the problems surrounding GM grains will eventually diminish. "The issue should wind down in a few years," stated Dennis Kitch, the Grains Council's regional director for Japan. Kitch also feels that Japan will be much more accepting of the technology once its domestic industry has the chance to approach the U.S. level of biotechnology. In the meantime, the Council stressed the importance of educating U.S. leaders and the public about biotechnology and its importance to, not only farmers, but consumers as well, due to the added nutritional benefits of GM products.

In a separate matter, the Japanese government and private industry are planning to invest \$800 million in joint grain production projects with Brazilian farmers, which would bring large Japanese grain trading companies improved access to a regular supply of soy complex at competitive prices. The goal of the joint program, known as PRODECER, is to increase current soybean production from 700,000 metric tons to 1 million metric tons. Part of the funding will be devoted to the development of a Brazilian crushing facility, as well as improvements to Brazil's infrastructure. Some 44 percent of the Brazilian soybean crushing market is currently shared by the grain companies of Archer Daniels Midland, Cargill, Bunge, and Louis Dreyfus. (*Reuters 2/14, Bridge News 2/14*)

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THE NON-GMO SOURCE

Information and resources to help you capitalize on the market opportunities for non-genetically modified products

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8 MARKETPLACE

Identity preservation is key to producing non-GMO products

Buyers want documented assurance that you have taken all necessary steps to eliminate GMOs

If you want to produce and market products as non-genetically modified (non-GMO), you better be prepared to prove your claim. As Amy Nankivil, export manager for Northland Organic Foods, says, "It's one thing to say your product is non-GMO, it's another to provide the documentation proving it."

A system of identity preservation (IP) provides the necessary documentation and tools needed to produce non-GMO products. "IP is a useful tool for credibly producing non-GMO," says John Moore, director of certification at Cert ID, a non-GMO certification company.

"Seed to plate"

IP is a system of producing specific crops, ingredients, or finished products to preserve their non-GMO identity through all stages of production—from "seed to store shelf." IP requires strict growing and handling procedures, including segregation, field inspections, equipment cleaning, and sampling and GMO testing. Each stage of production is documented to ensure that a crop or product can be traced back to its source. IP programs are used to produce non-GMO seed, raw grains, ingredients, and food products.

IP is a process guarantee, not a content guarantee. "You don't certify an end product," says Nankivil. "The process is certified."

IP systems have been used for many years to produce niche crops such as white corn, food grade soybeans, and specialty wheat. But the debate over GM crops is driving a demand for identity preservation of non-GMO products.

The following information briefly describes the key steps of an IP, non-GMO program.

Document every stage to ensure traceability

"You need traceability from the seed source to the end user," says Dennis Strayer, an IP consultant with Dennis Strayer & Associates. "This involves verification on paper or electronically that all the necessary steps were taken."

"You need to keep good records to ensure traceability," says Tim Aughenbaugh, presi-

dent, IdentityPreserved.com. Electronic traceability systems, such as those offered by IdentityPreserved.com and CropVerifeye.com, LLC, are emerging to streamline this process.

"An internet-based traceability system operates in real-time and transcends geographical boundaries," says Jim Mock, vice president, CropVerifeye.com. "A field inspector in the U.S. can input data, which may be accessible almost immediately to a buyer in Japan."

Start with non-GMO seed

"You have to know seeds are non-GMO," says Nankivil. "The seed must be verified to be what it is supposed to be," says Strayer. Moore recommends having seed tested for GMOs. The seed source should also be documented.

Prevent GMO contamination

Preventing GMO contamination requires segregating the non-GMO product, cleaning equipment used to handle the product, and inspections of crops and processing facilities.

In the field, buffer zones between crops are used to minimize pollen drift from GM varieties, particularly corn. Non-GMO crops are kept in separate bins on the farm and at grain elevators and processing facilities.

Colorado Sweet Gold, a non-GMO corn starch manufacturer shuts down its plant and cleans all equipment before processing corn.

CONTINUED ON PAGE 2 ►

Identity Preservation is Key FROM PAGE 1

Take samples and test for GMOs

Samples are taken at specific points in production and tested for GMOs, using one or a combination of test methods (see article on GMO testing on page 3). Samples must be statistically representative of the larger lot of material from where they came. Strayer says that the USDA's Grain Inspection Packers and Stockyard Administration (GIPSA) has developed sampling protocols that companies can follow.

Experts emphasize that GMO testing is one aspect of a total IP system, "Testing confirms that the program is doing what it is supposed to do," says Gerald Fowler, president, Manna International, a Canadian grower and exporter of non-GMO soybeans.

Communicate with everyone

With so many parties involved from seed companies to product manufacturers, "everyone needs to be on the same line of communication," says

Nankivil. On the other hand, poor communication can lead to big problems, such as those that resulted with Starlink corn, which Aughenbaugh says was due to a breakdown in communication between seed companies and farmers. "A good IP system is a team effort; every party must know their responsibilities and those of other parties in the chain," says Strayer.

Get third-party approval

Experts say IP programs should have third-party verification to add the weight of credibility to the non-GMO claim.

"In order for buyers to have confidence in the system, certification must be done by an arms-length, third-party whose business depends on the validity of the certification," says Lynn Clarkson, president, Clarkson Grain, a company that sells non-GMO grains.

Be Flexible

"IP is not a one-size-fits-all

endeavor," says Aughenbaugh. A company selling non-GMO soybeans to the feed market will not need as an extensive IP program as a baby food company dealing with multiple ingredients. "IP systems have to remain flexible to meet the needs of buyers and sellers," says Strayer.

Food products with multiple ingredients can present challenges. "You need to verify the source of the ingredients, which will require documentation and analysis from the suppliers," says Tom Harding, president, AgriSystems International, an organic consultant.

Establish a non-GMO threshold

The complexity of the IP system will also be determined by the buyer's requirement for non-GMO purity. "An IP program that requires 99% non-GMO will be very different than one that requires 95%," says Clarkson.

Clarkson emphasizes that 100% non-GMO is not possible due to widespread GMO contamination and limitations of GMO testing methods. As

a result, non-GMO programs typically allow a small percentage of "adventitious" contamination. These percentages range from .1% up to 1% and 5%.

Negotiate a premium

Companies should negotiate a large enough premium to cover the costs of an IP non-GMO system. Strayer says it's important that potential buyers recognize all the work that is required to produce an IP non-GMO product. This will help you negotiate a fair price. Clarkson says the cost for an IP non-GMO system could range from two to three cents per bushel up to 50 cents per bushel. "It depends on the degree of perfection you seek," says Clarkson.

For more information

The Association of Official Seed Certifying Agencies (AOSCA) is publishing a manual on identity preservation that should be available this spring. For more information contact AOSCA at 208-884-2493 or visit their website at <http://aosca.org>. ■

IP TIPS FROM THE EXPERTS

■ "You need to take precautions at all levels and prove you have done enough due diligence," says Gerald Fowler, Manna International, Sault Ste. Marie, Ontario, 705-946-2662.

■ "Pay attention to all the details; you have to think of every single aspect of the IP program," says Amy Nankivil, Northland Organic Foods, Winona, MN, 507-454-5762.

■ "You want a system that is designed to take the costs out of IP and increase the value," says Tim Aughenbaugh, IdentityPreserved.com, Iroquois, SD, 605-546-2299.

■ "Processors should get involved with growers to help them find non-GMO seed. Ingredient users should develop sources of credible non-GMO ingredients," says John Moore, Cert ID, Ltd., Fairfield, IA, 641-472-9979, ext.117.

■ "You have to know your own capabilities and work to your customers' requirements," says John Hamilton, Colorado Sweet Gold, Johnstown, CO, 970-587-6527.

■ "Find someone who has the expertise to establish an IP program that fits your needs and the needs of your customer," says Dennis Strayer, Dennis Strayer & Associates, Hudson, IA, 319-988-4187.

■ "You want to do as much due diligence as possible," says Tom Harding, AgriSystems International, Wind Gap, PA, 610-863-6700.

■ "Building confidence is the key. The buyer must have confidence in your system," says Lynn Clarkson, Clarkson Grain, Cerro Gordo, IL, 217-763-2861.

■ "The IP program must be third-party verified. It shows your customer you went an extra step," says Jim Mock, CropVerifeye.com, Wichita, KS, 316-689-4212.

Future issues will cover the elements of successful IP for non-GMO in greater depth.

What makes a system for non-GM supply?

We believe a working system for non-GM supply should include all of the following elements:

- 1) Traceability throughout the supply chain, linking the original seed to the final processed product. Paperwork to show this.
- 2) Verification of the seed as being non-GM.
- 3) Segregation (or IP) of the crops throughout handling and processing in country of origin.
- 4) Segregation (or IP) during shipping.
- 5) Segregation (or IP) of the crops throughout handling and processing in country of destination.
- 6) Paperwork available on request, to demonstrate the working of the system.

The above are general principles only. The precise mechanisms by which they are pursued by each company will depend on an assessment of the risks, the costs involved and the company's potential liability were the competence of the system to be challenged in court.

Testing

The type and frequency of testing is something for companies themselves to establish.

Segregation

Segregation (or IP) here means simply that the crop / product is not at any point commingled with crop / product which hasn't come through the system. There are many possible ways to achieve this.

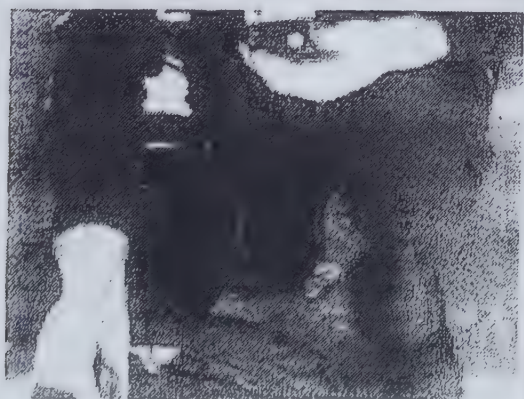
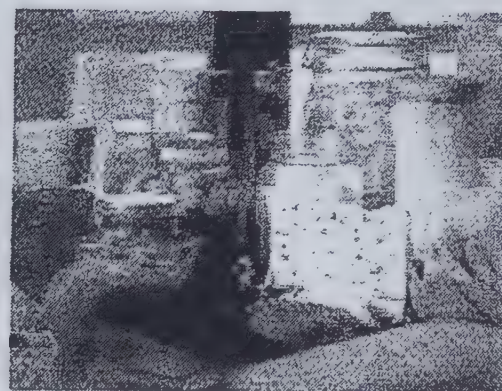
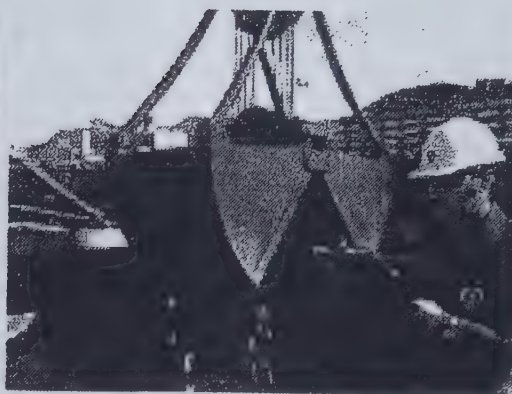
For more information, please contact Greg Muttitt at Greenpeace UK:
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12th April 2001

BUNGE ALIMENTOS S.A.

Unit: Luis Eduardo Magalhães - BA

Project: **Non GMO Soyabean
Certification and control**




PROJECT: Certification and Control of Non GMO Soyabea

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Project Objective

SGS do Brasil Ltda. understands that the main objective of the Project is to support the client requirements related to development and shipment of a Non GMO product with a traceability.

To achieve this goal, it becomes necessary to design and to develop a certification program that involves audit, inspection, testing, control and analysis of the different stages of the process of production, logistic, storage and shipment.

Taking into account that this program covers the whole process; SGS has prepared a FLOWCHART with a description of the respective stages. At the same time, scope and development have been defined for each critical point.

Stages

The process will include 5 stages, under SGS exhaustive follow-up.

Stage 1	Seeds Test
Stage 2	Crop Monitoring
Stage 3	Audit of the plant
Stage 4	Logistic Supervision
Stage 5	Shipment Control

CROP MONITORING



Detailed description of Stage 1

OBJECTIVE	DEVELOPMENT
Identification of Non-GMO fields and contaminated areas before delivery time by field interventions during growing period.	Checking of growing fields at random, sampling leaves during vegetative period and testing for <u>GMO supply survey and area identification</u>

SGS DO BRASIL LTDA INTERVENTIONS

- ✓ *SGS will be involved in the soyabeans' field controlling during vegetative period by sampling testing samples of plant leaves of different areas, as follows:*
- ✓ *Visiting of soyabean farming during the vegetative farming growing period, these visits shall be done by SGS auditors accompanied by BUNGE'S staff;*
- ✓ *Sampling of the plants leaf during the vegetative growing;*
- ✓ *Execution of enzymatic tests in the leaf of sampled plants to check the presence/absence of transgenic plants by using the SDI Trait kit – Elisa;*
- ✓ *Reports to be issued with a tested producers check list, plantation area, volume to be produced date, number of tested samples and results;*
- ✓ *Identification and segregation of the producers with positive results, which shows the presence transgenic plants in their farming;*

PLANT AUDIT CONTROL



Detailed description of Stage 2

OBJECTIVE

To minimize and if possible, to eliminate contamination risks at receiving and during reception, storage and production period by implementing a properly controlled system.

DEVELOPMENT

The Client has to set up an operative system as well as to establish procedures, internal controls and every necessary precautions to eliminate possible sources of contamination.

SGS DO BRASIL LTDA INTERVENTIONS

- ✓ **Checking of installations, operational procedures, and the evidence of internal controls existence**
- ✓ **Client has to set up a NON-GMO processing system control for segregation of reception, storage, processing, transportation and loading of Non-GMO goods to be certified.**
- ✓ **Sampling and testing of GMO by SDI Trait testing of representative samples to be done at arrival of goods prior to discharging of goods into the plant.**
- ✓ **SGS will be sampling and testing the soyabeans prior to the discharge at the county elevators and processing plant during the receiving of soyabeans as well as checking at processing of soyabean meal by sampling and analyzing goods during the whole certification period according to a pre-defined frequency of controls, as follows:**
- ✓ **Discharge of vehicles at the plant subjected to negative results of testing at receiving. Sampling of each truck at the reception of soyabeans at the County elevators as well as at the Processing Plant;**
- ✓ **Composition of representative samples for lots of 10 trucks received and/or 250 m.tons for GMO testing propose;**
- ✓ **Execution of enzymatic tests by SGS staff to the GMO identification;**
- ✓ **Positive results makes the cargo not fit to discharged at the plant.**
- ✓ **Positive results of composed samples for more than one vehicle shall have the test repeated for each vehicle in order to identify the vehicles with positive cargoes**
- ✓ **Acceptance of negative lots and rejection of positive cargoes before discharge of trucks based on the SDI testing report;**
- ✓ **Issuance of sampling and testing report;**
- ✓ **Control of trucks entrance at County elevators and Processing Plant by the acceptance report ;**
- ✓ **Continuous sampling in the cracker/laminator from the processing unit in order to compose 2 sets of representative samples each 10.000 m.tons processed - 1 (one) sample to be sent to PCR analysis for GMO control and 1 (one) sample to be kept on file for 90 days period.**

LOGISTIC SUPERVISION



Detailed description of Stage 3

OBJECTIVE

Goods final control on each truck before they are entered into silos with the consequently loss of identity, to verify their Non-GMO condition maintenance

DEVELOPMENT

Loaded trucks are driven to the gathering plant unloaded. The driver must have all the documents in order and be willing to cooperate with SGS loss requirements on demand

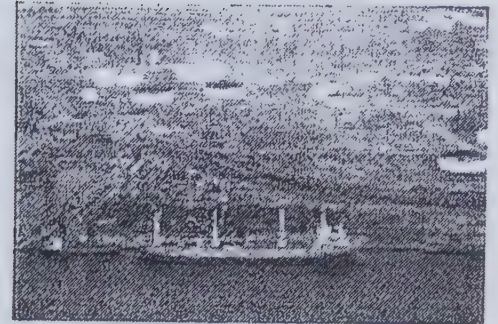
SGS DO BRASIL LTDA INTERVENTIONS

- ✓ Visual inspection of cleanness of each vehicle to be loaded, driver's documentation control ensure load's traceability as well as packing conditions to avoid contamination of cargoes;
- ✓ SGS Inspector will supervise the loading/packing of goods;
- ✓ Based on the loading/packing check-list, with lots numbers, vehicles identification quantity/weight loaded at origin, SGS inspector will be supervising the arriving of vehicle destiny;
- ✓ Visual inspection of cleanness of discharging system at port's warehouse to ensure segregation of lots and to avoid and contamination with other residues;
- ✓ SGS Inspector will supervise the discharge of lots/vehicles and will be sampling the in products, at receiving to compose representative samples for each 10,000 m. received/stored at the port's warehouse;
- ✓ One set of representative samples of each 10,000 m.tons received will be send for GMO analysis PCR methodology.
- ✓ One set of representative samples of each 10,000 m.tons received will be kept on file for 90 period.

SGS do Brasil Ltda.

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ALIMENTOS

SHIPMENT CONTROL



Detailed description of Stage 4

OBJECTIVE

Final confirmation of Non-GMO goods supply during vessel's load

DEVELOPMENT

After shipment date coordination, goods will be loaded into the vessel

SGS DO BRASIL LTDA INTERVENTIONS

- ✓ **SGS Vessel's Hold cleanness inspection before starting of loading.**
- ✓ **SGS Visual cleanness inspection of loading system prior to loading of Non-GMO goods.**
- ✓ **SGS will supervise the loading of goods, taking samples of every 500 tons, during the load of the vessel (for bulk cargoes, as per GAFTA).**
- ✓ **Composition of samples for GMO Analysis (PCR) for sets of goods arranged by a the totality of each hold loaded, as agreed with the client.**
- ✓ **One set of representative samples of goods loaded in each hold will be send for GMO analysis by PCR methodology.**
- ✓ **One set of representative samples of goods loaded in each hold will be kept on file for 90 days period.**

SGS do Brasil Ltda.

BUNGE
ALIMENTOS

PCR Analysis Execution



All analysis mentioned in the process stages development will be carried out in our own Laboratory located in Santos, Brazil. **SGS Brazil Genetic Laboratory** has been developed to provide qualified results, duly verified, representing a vital tool at the service of trade and research, and to provide accurate and speedy results in 48 hours (for the analysis).

Facilities have been specially designed to these effects, showing a lay-out enabling to group sophisticated equipments in different areas according to specialties. One of these equipments, The Light Cycler Real Time PCR (Roche) constitutes a very advanced technology in Brazil, Argentina and France.

This variety and capability provide SGS Brazil Genetic Laboratory with great capabilities to attend the most varied requirements, applying an analytical methodology of international recognition.

Our Laboratory operates according to GAFTA, FOSFA, and OAA Standards.



Cert ID Non-GMO Certification

Access global markets and meet consumers' needs

- Prevent GMO contamination with a verified identity preserved (IP) system
- Provide documented proof that you have taken every step required to eliminate GMOs
- Reduce your testing costs
- Comply with international regulations and meet consumer requirements
- Gain third-party credibility and market access with the widely recognized Cert ID non-GMO seal
- Access sources of non-GM inputs



Cert IDSM is the world's most widely accepted non-GMO certification program. With the Cert ID non-GMO seal, you will earn consumer confidence in your products and secure your share in non-GMO markets. And certification might actually cost less than testing alone.

Produce non-GM products with confidence

Around the world, stable markets are growing for crops and foods free from genetically modified organisms (GMOs). But supplying these markets can be difficult. Your products must pass through a maze of government regulations, buyers' requirements, and multiple GMO tests.

While isolated GMO testing was once considered sufficient, buyers in Europe, Japan, and elsewhere now require documentation of an effective internal-segregation system. In addition, many demand a third-party "farm to shelf" guarantee of a food product's non-GMO status.

With Cert ID, you can meet this demand. Cert ID is the only program of its kind that integrates top-quality GMO testing with the rigorous traceability of an identity preserved (IP) system—backed up by an ISO-compliant certification.

Our Cert ID experts can guide you through the specialized process of excluding GMOs from your food products. We help you design a comprehensive, documented system that can trace products' ingredients to their source. And our Cert ID seal—the "non-GMO seal of approval"—establishes your non-GMO status with recognized third-party credibility.

Cert ID: a worldwide collaboration between manufacturers and consumers

In 1997, Genetic ID, Inc., began a worldwide collaboration to develop standards for non-GMO food production that would be acceptable to industry and consumers. Our experts traveled to 22 countries and spoke with hundreds of companies, consumer representatives, and government officials.

We were ready in 1999, when a consortium of major retailers in Europe was seeking a third-party non-GMO certification system that was both practical for manufacturers and credible to consumers. At its request, Genetic ID teamed up with Law Laboratories Ltd., a leading lab in the United Kingdom with expertise in food regulation and compliance, to create the Cert ID Non-GMO Certification Program.

Today Cert ID is used by growers, processors, food manufacturers, and retailers on five continents.



THE GLOBAL LEADER
IN GMO IDENTIFICATION

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Certification can be done in easy, practical, cost-effective steps

Whether you want to certify your whole product line, or meet the certification needs of a single buyer, Genetic ID provides several flexible options to meet your needs.

- **IP System Approval** – The first step for most producers is IP System Approval. With official approval of your identity preservation system, you and your customers will gain the confidence that your production system is designed to protect the non-GMO status of your products. Your official letter of IP System Approval, which fulfills the traceability requirements of EU and Japanese regulations, can be submitted to your customers along with any required GMO test results. With IP System Approval, you also receive detailed plans on the steps necessary for subsequent Lot-by-Lot, Ingredient, or Full-Product-Line Certification.
- **Lot-by-Lot Certification** – Having gained IP System Approval, you can now selectively respond to your more demanding customers by certifying the specific lots they buy. Certified lots will carry the official Cert ID seal as well as the documentation that independently verifies your IP system, sampling procedures, and GMO test methods and results. Lot-by-Lot Certification lets you instantly expand your product line by giving your buyers the option to order products with or without Cert ID certification. You will know in advance how much the certification will cost and can calculate how much premium, if any, you wish to charge. And since your IP system is already approved, certifying a lot is quick and efficient.
- **Full-Product-Line Certification** – Lot-by-Lot Certification allows you to respond effectively to a growing market for certified non-GM products. With sufficient demand, however, Full-Product-Line Certification will be more economical. Using an IP system and an appropriate sampling plan, you won't have to rely on testing every lot to ensure its non-GMO status. Your entire product line will carry the Cert ID seal and therefore have access to non-GMO markets worldwide.

Additional certification options

- **Ingredient Certification** is for producers who have some, but not all, ingredients in their products certified non-GMO. The products' labels can state which ingredients are certified by Cert ID.
- **Government Regulatory Verification** is a program that verifies that your products comply with specific regional or national laws. This can apply to labeling laws as well as regulations that ban specific GM varieties. Such compliance verification is available to you whether or not you use Cert ID non-GMO certification.

Components of certification

Certification begins with an on-site Project Assessment to determine the status of your non-GMO segregation and controls. We then develop and present you with a Certification Plan, which is adjusted, if needed, by mutual decision. If you already have segregation programs in place, the certification plan could be as simple as fine-tuning your procedures, establishing systematic record-keeping, and adding back-up testing. Genetic ID can also design and implement a system for IP production as well as provide training to your staff.

Following the Certification Plan and making the necessary changes in your production system enables you to prevent GMO contamination. To establish compliance with the Certification Plan, you complete documentation at critical stages of the production process. Your records then ensure that your non-GM end product can be traced to its source.

Third-party inspectors periodically review your system design and audit your documentation for accuracy and completeness, as well as inspect your operations and facilities to ensure they are operating according to Cert ID standards. Sampling protocols are customized to your production system to give you the greatest protection for the least cost. Samples are collected at key control points and tested for GMO content. Once your lot or production system has achieved certified status, you can label your product with the Cert ID non-GMO seal.

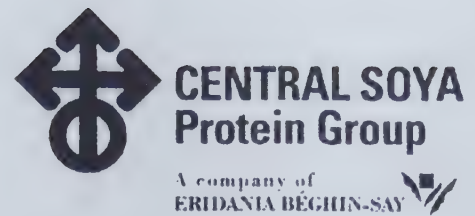
The components and cost of certification will depend on your production system and your needs. To learn which certification option is best for you, please contact a Genetic ID representative.

In the current
global
marketplace,
certification is
the key to
success.
Cert ID opens
doors to even
the most
demanding
markets.



THE GLOBAL LEADER
IN GMO IDENTIFICATION

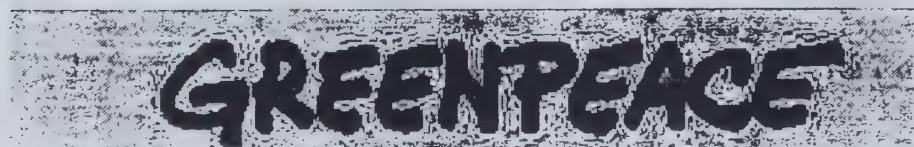
COPYRIGHT © 2000 BY GENETIC ID, INC.



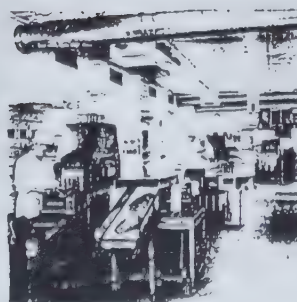
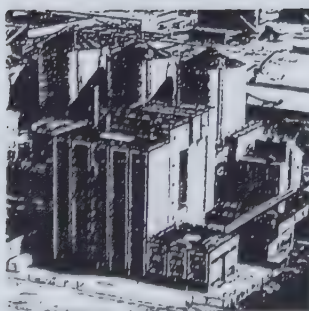
THE CENTRAL SOYA TRADITIONAL SOYA (TS) PRODUCT LINE

DOCUMENTATION DOSSIER

Prepared for



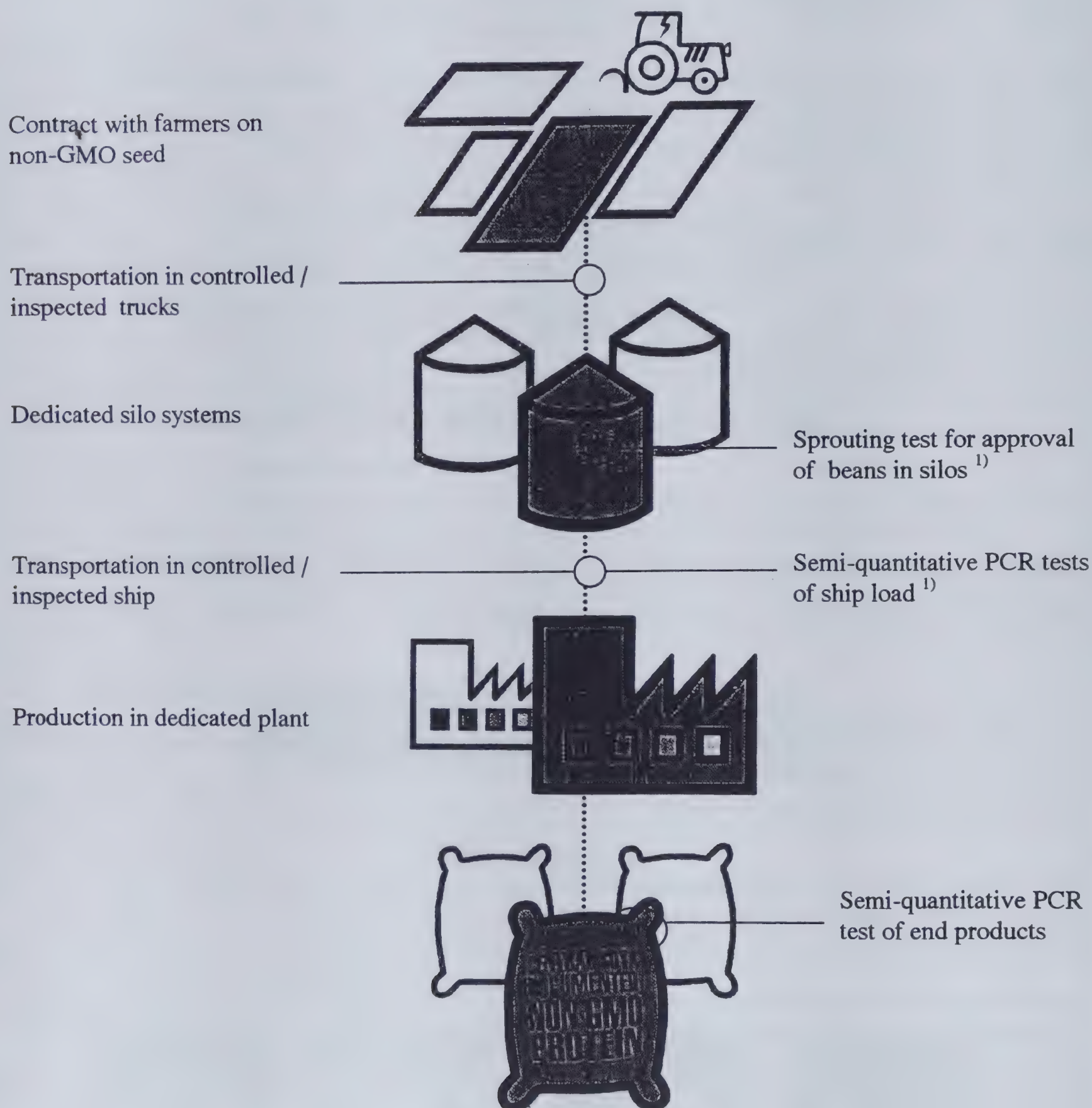
August 1999



Central Soya Aarhus, Denmark, Manufacturing Site and R & D laboratories.

Central Soya Identity Preservation System (IP)

An overview



Note 1) Sampling is done by independent 3rd party using internationally approved sampling methods.



ADM

ADM Europoort B.V.

Quality Assurance Department.

_____, 2000.

CERTIFICATE OF CONFORMITY

THIS DOCUMENT VERIFIES THE SOYA PROTEIN PRODUCTS LISTED BELOW WERE MANUFACTURED USING THE PROTOCOLS OF ADM EUROPOORT B.V.'S DOCUMENTED NON-GM PROGRAM IN THE EUROPOORT FACILITY.

PRODUCT (S)

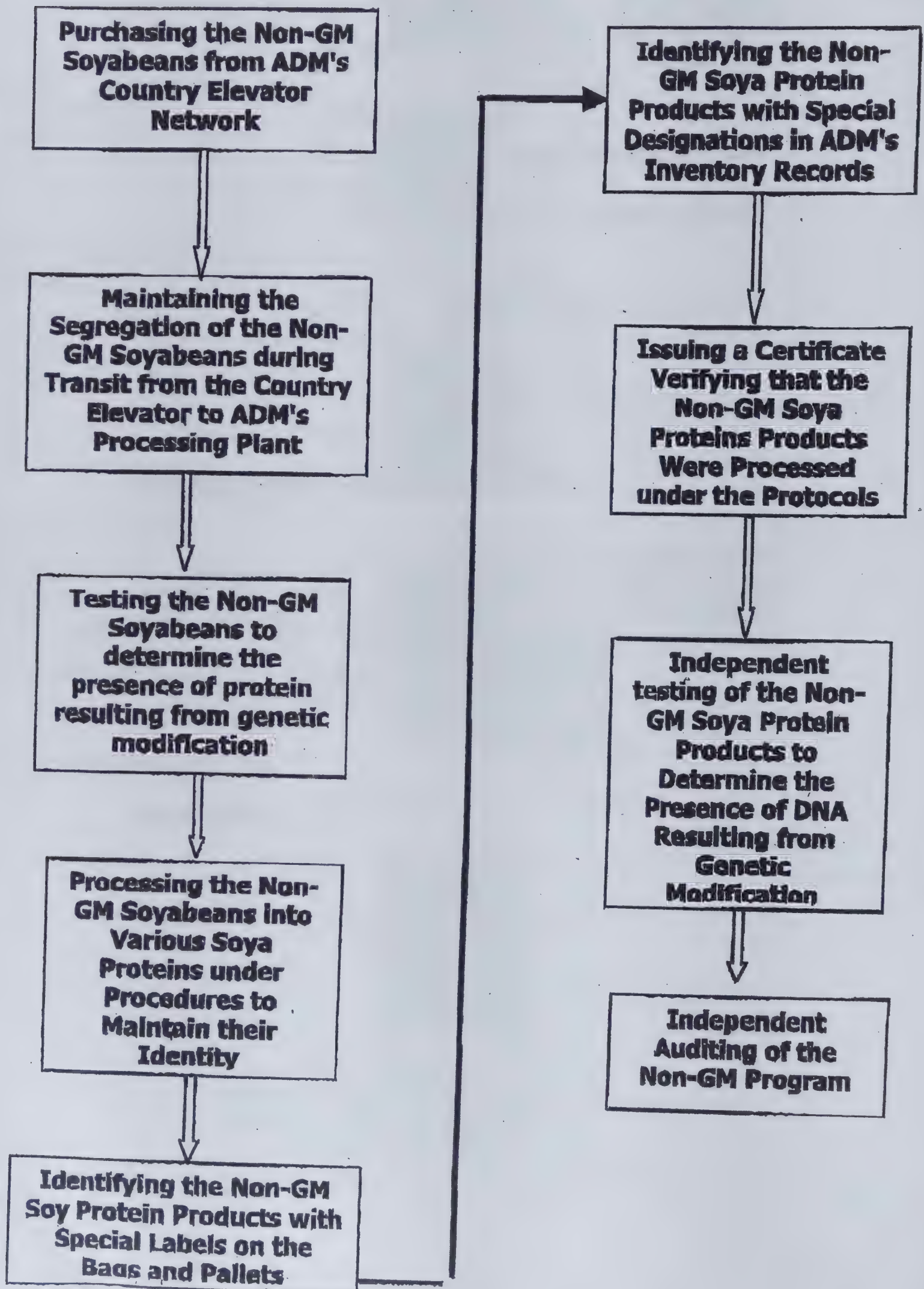
Product

LOT NUMBER (S)

aaabbbcccd

Ingrid Passler
Quality Assurance Manager
Protein Specialties Division
ADM Europoort B.V.

ADM's DOCUMENTED NON-GM Program



Background

European Council Regulation No. 1139/98 laid down the compulsory indication on the labelling of foods and food ingredients produced from genetically modified soya (Glycine max.) and acknowledged that the adventitious contamination of foodstuffs with DNA or protein resulting from genetic modification cannot be excluded. EU Regulation 49/2000 has now established the value of 1% as a maximum level for the adventitious contamination derived from genetically modified organisms. In order to assist food manufacturers to comply with this, ADM has developed a documented and third party audited program for the manufacture of soya protein ingredients using traditional (Non-GM) soya beans as outlined below.

Definitions –

Non-Genetically Modified (Non-GM) – In the context of Non-GM soya beans, Non-GM refers to soya beans that have been tested using the Trait \sqrt GR Lateral Flow Test from a representative sample of the soya beans and the results from such a test indicate that the soya beans do not contain more than one per cent protein produced by a gene derived from *Agrobacterium* sp strain CP4 (a gene incorporated into Roundup Ready® soya beans).

In the context of Non-GM soya proteins, Non-GM refers to a lot of soya proteins that have been tested by a third party laboratory using the Polymerase Chain Reaction (PCR) Test, using a representative sample of soya proteins from such a lot, and results from such tests indicate that the soya proteins do not contain more than one per cent (Roundup Ready®) GM DNA.

Documented Non-GM Program – This program is defined as the sourcing of soya beans identified to ADM as Non-GM and the subsequent segregation of such soya beans. Once identified and segregated, the identity of the Non-GM crop must be maintained during all subsequent phases of the production process including transport to the processing facility, processing into finished products and the storage of those finished products. The program must also call for the maintenance of rigorous documentation for all procedures. A good system also requires the use of outside auditors to ensure compliance with all procedures and documentation.

The purpose of this program is to assist our customers to comply with the exemption contained in EU Regulation No. 49/2000 by providing them with evidence that they have taken appropriate steps to avoid using genetically modified organisms. This document describes the measures that ADM has put into place to acquire Non-GM soya beans, test the beans to confirm they are in fact Non-GM, and then to preserve the integrity of Non-GM soya beans and the Non-GM soya proteins derived from them.

Independent Audit – An independent audit is the actual examination of every phase of a program by an auditing firm – the firm selected to perform the audit should not be part of, or related to, the processing company and this firm should be recognised as competent in the subject it is auditing. It is not sufficient that such an audit merely inspects the documentation of a program. More importantly, a

Background and technical information

US scrambles to limit trade costs of biotech corn

http://www.agriculture.com/worldwide/AgricultureFarming/10_26_2000.reutr-story-N263445.html

WASHINGTON, Oct 26 (Reuters) - The White House called a meeting of top biotech food policymakers on Thursday to work out a strategy to address Japan's concerns about the possibility of its imported U.S. grain being contaminated with a gene-spliced corn not approved for human food. The accidental commingling of corn known as StarLink has forced U.S. grocery stores to recall various brands of taco shells, and the widespread testing by U.S. foodmakers of other products containing corn flour. Officials with the U.S. Agriculture Department, Environmental Protection Agency, the Food and Drug Administration, and the Office of Management and Budget were among those summoned to discuss the contamination of U.S. food products with StarLink bio-corn.

The corn, made by Aventis SA, has not been approved for human consumption because of concerns about potential allergic reactions. Uncertainty about U.S. exports pushed down corn futures traded on the Chicago Board of Trade. The December futures contract closed down a penny at \$2.02-1/4 per bushel. Keith Pitts, a special advisor on biotech issues to Agriculture Secretary Dan Glickman, said a top priority for the U.S. government is to calm the fears of overseas grain buyers. On Wednesday, a Japanese consumer group said it found traces of StarLink in a baking mix. That prompted Tokyo to ask Washington for assurances that no StarLink would seep into any more of its grain and food purchases. "There are discussions underway now about what kinds of restrictions are needed" to satisfy Japanese concerns, Pitts told the Senate Biotech Caucus, a newly formed group of lawmakers concerned about gene-spliced food issues. Speaking to reporters after the hearing, Pitts declined to elaborate.

"Whatever they need us to do, we will do," he added, referring to Japan. Japan, like many European nations and Australia, has strict rules about bioengineered food and requires labels identifying any gene-spliced ingredients. Officials at the White House meeting were tight-lipped and refused to comment on what was discussed.

STARLINK COSTLY FOR FOODMAKERS

StarLink, a yellow corn containing a gene that repels destructive pests, is at the center of a controversy affecting farmers, grain elevators, commodity exports and foodmakers. Instead of being kept carefully segregated for use only as animal feed or ethanol production, some StarLink was accidentally commingled with other varieties of yellow corn. After determining Aventis failed to keep control of the corn, the USDA moved into action late last month to scoop up as much of the corn as possible. Of the total estimated 80 million bushels of StarLink corn grown by American farmers this year, about 1.2 million bushels have yet to be accounted for, Pitts said.

"There is about 1.2 million bushels we're trying to track down," he told the Senate caucus. The USDA is also taking a closer look at what kinds of rules may be needed for segregating biotech grains to make sure they are channeled correctly to meet buyers' expectations, Pitts said. The department soon will issue a formal notice that it is looking at grain segregation issues, he said. Aventis is expected to spend an estimated \$100 million to repay farmers for the corn. That estimate, however, does not include the costs of disrupted production lines at food plants, expensive testing of corn flour for contamination, and consumer lawsuits for any allergic reactions to the corn. EPA and USDA officials made it clear that Aventis bears full responsibility for the chaos reverberating throughout the food industry.

The EPA approval required Aventis to carefully label each bag of StarLink seed, spell out the restrictions in legal documents given to farmers and take other steps to ensure StarLink did not enter the human food supply. "We thought that we had a sufficient stewardship program in place," said Jim Aidala, EPA associate assistant administrator. "The company didn't live up to its side of the bargain."

AVENTIS FIGHTS BACK

On Wednesday, Aventis submitted 75 pages of new science data to the Environmental Protection Agency in an attempt to win a temporary exemption for StarLink to appear in human food. Aventis said in the documents that four

years would be needed for all the StarLink grown last year and this year to be harvested, processed, and consumed by Americans. Steve Johnson, deputy EPA administrator, told the Senate panel that his agency would convene a group of independent scientists to review the new data. A decision will not be made for "several weeks," he said.

"We have to do this in an open, transparent way," Johnson said. "We cannot compromise the integrity of the science process." American environmental groups said they were concerned that the EPA was under heavy pressure from so many food companies to grant the exemption. "We want to make sure that the EPA does not cave into the food industry's demands instead of considering all the consumer and science issues," said Richard Kaplan of the U.S. Public Interest Research Group. Farm state lawmakers who support biocrops, expressed concern that the StarLink recalls, food testing and trade issues could overshadow the benefits of biofoods.

Missouri Sen. Kit Bond, a Republican, said the "hysteria and a lack of knowledge" about gene-modified foods could harm the biotech industry as it develops foods containing enhanced vitamins and nutritional content. "We're not talking about poison here, we're talking about a potential allergy," Bond said, referring to StarLink. The EPA, which is responsible for safe pesticides, regulates StarLink because it is genetically engineered to contain a type of pesticide. The USDA regulates field trials of new gene-altered crops before they are commercialized. The Food and Drug Administration has authority to enforce the safety of biofoods for consumers, and can require labels if a food contains a potential allergen.

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Corn-Recall Cost Could Reach Into the Hundreds of Millions

Wall Street Journal SARAH LUECK, AMY MERRICK, JOEL MILLMAN and
STEPHEN D. MOORE November 3, 2000

The recall of StarLink genetically modified corn could cost companies all along the food chain hundreds of millions of dollars as they attempt to find, retrieve and replace products that used the corn.

From Aventis SA, which markets StarLink, to food processors and grocery stores, the impact of the recall is sweeping, covering nearly 300 products and requiring increased testing. Already, the first lawsuits have been filed by consumers claiming allergic reactions to the corn, which is approved only for animal feed and industrial purposes. But some companies are reaping big benefits from the StarLink corn flap. French pharmaceutical concern Aventis estimates that it will spend from \$100 million to \$1 billion on the 25 cents-per-bushel ``service fee`` to buy the StarLink crop back from growers. ``But it's still not clear how that cost will be divided between Aventis, the seed companies who licensed the StarLink technology and insurers for everybody involved,`` said Gerhard Waitz, a company spokesman.

Aventis officials expect legal wrangling over responsibility for unauthorized uses of StarLink corn. Government officials have said Aventis failed to make sure that the corn was grown with buffers that would prevent cross-pollination and other restrictions that were conditions of StarLink's approval. Aventis officials insist that seed companies licensed to incorporate the corn into their own products were responsible for notifying farmers about the restrictions. ``We did everything we had to do -- and after growers licensed the technology, they had to see that things were properly handled in the next stages of distribution,`` said one Aventis official.

The U.S. subsidiaries of Mexico's largest corn miller, Gruma SA, already have spent millions of dollars on an extensive recall of tortilla chips, tortillas and taco shells produced by Mission Foods from corn flour produced by a sister company, Azteca Milling.

Peter Pitts, a Mission spokesman, said that since the recall began, Mission's entire sales force of more than 200 has worked full time on the recall effort. To date, from five million to six million pounds of Mission products have been either destroyed or placed in storage. Mr. Pitts added that Mission may spend as much as \$10 million this year correcting any problems that have risen in connection with the StarLink episode.

The flap cost Azteca at least one big customer: Bimbo Bakeries USA, a subsidiary of Mexico's largest bread company, Grupo Bimbo SA, which stopped buying Azteca corn flour in late September. Azteca, a joint venture between Gruma and Archer-Daniels-Midland Co. of Decatur, Ill., had been Bimbo's exclusive supplier of corn flour for three tortilla plants in Ohio, Texas and California. A Bimbo official said it is now buying flour from Grupo Minsa SA, which also has U.S. operations.

Frito-Lay, a unit of PepsiCo Inc. and the biggest maker of corn snacks, said its own growers supply the majority of its corn. The small amount bought on the open market is tested for StarLink by suppliers at the company's request, said a spokeswoman. Tricon Global

Restaurants Inc. said October same-store sales fell 12% at its Taco Bell chain, partly because of the StarLink recall. Taco Bell licenses its name to a type of Kraft Foods taco shell, a recalled product sold in supermarkets.

For other food concerns and grocery stores, costs could reach the tens of millions, said Gene Grabowski, a spokesman for the Grocery Manufacturers of America in Washington, D.C. Physically removing products from store shelves and shipping them back to plants should account for the bulk of those expenses, he said.

For grain elevators and exporters such as Cargill Inc., ConAgra Foods Inc. and Continental Grain Co., the recall represents lost market opportunities, said Randy Gordon, a spokesman for the National Grain and Feed Association.

Whatever the recall costs, Cargill says it doesn't plan to pay it quietly. "We are going to be holding Aventis responsible, and we are going to be filing claims," spokeswoman Bonnie Raquet said.

The Food and Drug Administration is investigating several reports of allergic reactions, but hasn't confirmed StarLink was the culprit. Officials have called such risks "remote."

But that doesn't rule out lawsuits from people who believe StarLink made them sick. In Chicago, two people are suing Aventis and Azteca, claiming they got hives, stomachaches and other allergy symptoms after eating Kraft taco shells.

The companies that sell tests for detecting StarLink may be among the few that benefit from the recall. Strategic Diagnostics Inc., Newark, Del., sold 400,000 such tests by Oct. 20 to clients including ADM and Azteca, said Arthur Koch, chief financial officer. EnviroLogix Inc. of Portland, Maine, which sells similar tests, has been fielding many calls from the food industry and government agencies, said Dean Layton, vice president of marketing and sales.

Brussels, 25 July 2001

Commission improves rules on labelling and tracing of GMOs in Europe to enable freedom of choice and ensure environmental safety

The European Commission adopted today an important legislative package on genetically modified organisms (GMOs) which establishes a sound community system to trace and label GMOs and to regulate the placing on the market and labelling of food and feed products derived from GMOs. The new legislation is intended to provide a trustworthy and environmentally safe approach to GMOs, GM food and GM feed. The package consists of a proposal¹ for traceability and labelling of GMOs and products produced from GMOs and a proposal² on regulating GM food and feed. It will require the traceability of GMOs throughout the chain from farm to table and provide consumers with information by labelling all food and feed consisting of, containing or produced from a GMO. It will establish a "one door – one key" procedure for the authorisation of GMOs for food and feed, including the deliberate release into the environment. This procedure will consist of a single scientific assessment, carried out by the scientific committees of the European Food Authority. The new system as proposed today ensures a tight and stringent regulatory framework on the use of GMOs in Europe and closes existing legal gaps whilst addressing legitimate concerns of the economic operators. It meets the requests by Member States governments, the European Parliament and consumer organisations and has been drafted in close dialogue with all stakeholders and Member States. Two further proposals relating to GM seed will be brought forward in autumn. Today's proposals are subject to co-decision with the European Parliament and the Council and should enter into force in 2003 at the latest. The labelling provisions in respect of food and feed will be reviewed after two years of operation.

Commenting on the proposals, Environment Commissioner Margot Wallström said: "The provisions for traceability ensure a high level of environmental and health protection and pave the way for a proper labelling system. Certainly, there is a cost for the producers and for trade, but what is at stake is our ability to build public confidence. European companies will only be able to seize the opportunities provided by bio-technology if this confidence is established".

Health and Consumer Protection Commissioner David Byrne emphasised: "These laws will ensure that the regulatory framework in the EU is up to the high standard consumers expect. After that it is for consumers to decide if they want to buy food produced from a GMO."

¹ Proposal for a Regulation of the European Parliament and of the Council concerning traceability and labelling of genetically modified organisms and traceability of food and feed products produced from genetically modified organisms.

² Proposal for a Regulation of the European Parliament and of the Council on genetically modified food and feed.

The proposed labelling regime will allow consumers to make that choice. Consumers can be assured that any GMOs in their food have been assessed strictly for their safety.

Equally important to me is that for the first time ever we will have clear rules on GM-feed in place in Europe which is a major contribution to provide trustworthy information to farmers on the feed they buy".

The main European legislation³ in force on GMOs ensures the scientific safety assessment of GMOs, regulates its authorisation and its use. Its general provisions apply to genetically modified seed, feed and food. The directive also requires traceability and labelling without elaborating on details. Today's proposals specify the details of those requirements designed to protect the environment in case any problem emerges while not imposing too heavy burden on economic operators. Furthermore, the proposals introduce for the first time specific rules on GM-feed in Europe and existing provisions on GM-food⁴ are unified and streamlined.⁵ The draft legislation presented today takes account the international trade commitments of the European Communities and the requirements of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity as regards importer obligations and notifications.

The adoption of today's proposals together with the recent adoption of the revised legal framework on the deliberate release of GMOs into the environment will build up public confidence by responding to questions and concerns raised by the general public and providing a high level of protection for human health and the environment. This will contribute towards the lifting of the de facto moratorium on the commercial release of GMOs.

Traceability

Traceability entails the ability to trace products through the production and distribution chains. Traceability for certain products has existed for many years. However, specific traceability requirements for products that contain GMOs or are derived from GMOs do not currently exist. The proposed regulation makes it possible to trace GMOs through the production and distribution chain. Traceability facilitates monitoring of any effects on human health and the environment, for accurate labelling and for controlling labelling claims. It is also necessary to enable withdrawal from the market in case of unexpected adverse effects.

In the new Regulation traceability is ensured by putting obligations on business operators to transmit and retain information at each stage of the placing on the market. The industry must have systems in place that identify to whom and from whom GM products are made available. Information concerning the presence of GMOs must be transmitted throughout the commercial chain and must be retained for five years.

Transmission and storage of information will reduce the need for sampling and testing of products. To facilitate a co-ordinated approach for inspection and control by Member State, the Commission will develop technical guidance on sampling and testing methods prior to the application of this proposed regulation.

³ Directive 90/220/EEC on the deliberate release into the environment, revised as Directive 2001/18/EC which will take effect from October 2002 onwards.

⁴ Regulation (EC) 258/97 on novel foods and novel foods ingredients ; Regulation (EC) 1139/98 concerning the compulsory indication of the labelling of certain foodstuffs produced from GMOs and Regulation (EC) 49/2000 and (EC) 50/2000 on the labelling of foodstuffs and food ingredients containing additives and flavourings.

⁵ A total of 18 authorisations of GMOs have been granted for the placing on the market in the EU, two of which cover use as food (one maize, one soya), and eight cover use in feedingstuffs (one for soya, four for maize and three for rape). Eleven food products produced from GMOs have been notified to the Commission as being substantially equivalent. See also MEMO/01/277.

"The proposal for a harmonised framework for traceability and labelling of GMOs will provide for legal certainty as well as a coherent approach that should contribute to the effective functioning of the internal market," Commissioner Wallström said: "With common rules, we should avoid that Member States establish 15 different systems of traceability. Instead, consumers and operators get one single, effective and transparent system to keep track of GMOs which will operate throughout the EU. "

Labelling

In comparison with the labelling system in place today, the proposal on GM food and feed will add the labelling of:

- All foods produced from GMOs irrespective of whether there is DNA or protein of GM origin in the final product
- All genetically modified feed.

GM-food

Already today, retailers have to label a food consisting of or containing GMOs. This also includes food produced from GMOs if traces of DNA or protein from the genetic modification is detectable in the final product (such as flour produced from genetically modified maize (see Annex 1). However, the labelling provisions do not cover some foods or food ingredients, such as highly refined soya or maize oil. The effect of today's proposal is to extend the current labelling requirements to also cover such food and food ingredients produced from GMOs and to allow consumers to exercise their freedom of choice. The accidental presence of GM-material in food up to 1% will continue to be exempted from the labelling obligation.

GM-feed

The proposal also introduces for the first time strict labelling requirements of GM-feed along the same principle as for GM food. Currently no labelling requirements are in place for feed produced from GMOs. The proposal will require labelling of, for example, GM-soy meal and any compound feed that includes in its composition the GM-soya meal. It will also require labelling of corn gluten feed produced from GM maize. The accidental presence of GM-material in feed up to 1% will be exempted from the labelling obligation.

"The objective of the harmonised and comprehensive labelling requirements proposed is to respond to an overwhelming need to enable the consumer or users to make an individual choice and thereby to foster increased public confidence", said David Byrne.

Adventitious presence

An issue which arises from the cultivation of GMOs is the possibility of the presence of minute traces of unauthorised GMOs in food and feed. These traces may be technically unavoidable during cultivation, harvest, transport and processing. Whether we like it or not this has become a reality. This is not a problem which is particular to GMOs. In the production of food, feed and seed, it is practically impossible to achieve products which are 100% pure.

The present proposal acknowledges this fact and sets up specific conditions under which technically unavoidable presence of unauthorised GMOs could be permitted. In the EU, a number of GMOs have already been assessed by the Scientific Committees as not posing a danger to environment and health. However, these GMOs are still pending final approval.

The proposal allows for these GMOs which have received a positive opinion from a EU Scientific Committee to be present in a food or feed up to a maximum of 1%.

Authorisation procedure

Clear rules are set out in the EU for the assessment and authorisation of GMOs and GM-food but responsibilities are divided between Member States and the Community. It is therefore proposed to establish a "one door – one key"-procedure for the scientific assessment and authorisation of GMOs and GM food and feed resulting in a centralised, clear and transparent Community procedure where an operator only has to file a single application. Learning from the US experience with StarLink, the proposal provides that GMOs likely to be used as food and feed can only be authorised for both uses or not at all.

The scientific risk assessment will be carried out by the European Food Authority covering both the environmental risk and human and animal health safety assessment. Its opinion will be made available to the public and the public will have the possibility to make comments. On the basis of the opinion of the European Food Authority, the Commission will draft a proposal for granting or refusing authorisation. The proposal will as it is currently the case be approved through qualified majority of the Member States within a Regulatory Committee. Products authorised shall be entered into a public register of GM-food and feed. The authorisation should be granted for a period of 10 years, subject where appropriate to a post-market monitoring plan. Authorisations are renewable for 10-year periods.

The simplified procedure for putting on the market GM-foods which are considered to be substantially equivalent to existing foods will be abandoned.

Current GM-products will remain eligible for marketing. Operators will however be obliged to provide methods for sampling and detection to the European Food Authority within six months of entry into force of today's proposal. The proposal also establishes the Joint Research Centre (JRC) of the Commission as new Community Reference Laboratory which will have the main task of validating sampling and detection methods. The JRC will continue to work with the "European Network of GMO laboratories".

Existing GM-products shall also be entered into the public register and the time limit of 10 years from the day when the concerned product was first placed on the market equally applies to them.

Beate GMINDER:	02/296.56.94
Pia AHRENKILDE:	02/299.12.23
Thorsten MUENCH:	02/296.10.63
Catherine BUNYAN:	02/299.65.12

ANNEX I

Labelling of GM-Food and GM-Feed – Examples⁶

GMO-type	EXAMPLE	Labelling Required at present	Labelling required in future
GM plant	Chicory ⁷	Yes	Yes
GM seed	Maize seeds	Yes	Yes
GM food	Maize, Soybean sprouts, Tomato	Yes	Yes
Food produced from GMOs	Maize flour ⁸	Yes	Yes
	Highly refined maize oil, soybean oil, rape seed oil	No	Yes
	Glucose syrup produced from maize starch ⁹	No	Yes
Food from animals fed on GM feed	Eggs, meat, milk	No	No
Food produced with the help of a GM enzyme	Cheese produced with the help of chymosin	No	No
Food additive/flavouring produced from GMOs	Highly filtered lecithin extracted from soybean oil used in chocolate ⁹	No	Yes
GM Feed	Maize ¹⁰	Yes	Yes
Feed produced from a GMO	Corn gluten feed, Soybean meal	No	Yes
Feed additive produced from a GMO	Vitamin B2 (riboflavin)	No	Yes

⁶ The examples include foods which have not been authorised for marketing in the EU. See Annex II for a list of products which can legally be marketed in the EU.

⁷ One chicory has been approved for breeding purposes under Directive 90/220/EC, but not for food use

⁸ DNA or protein of GM origin detectable in the final product.

⁹ DNA or protein of GM origin not detectable in the final product.

¹⁰ The current labelling rules entered into force in 1997, and does not include four GMOs approved prior to that date.

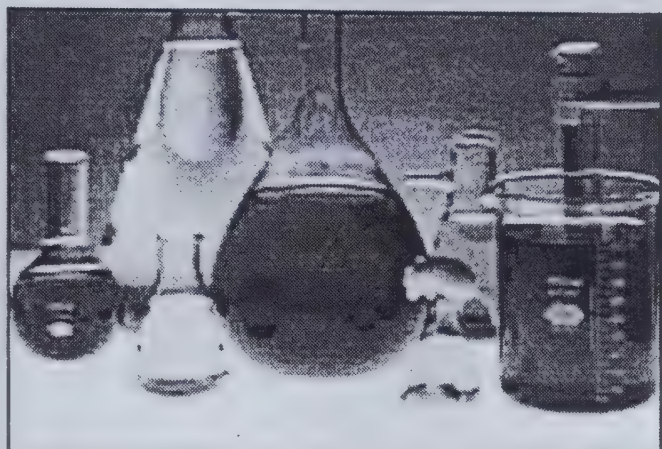
ANNEX II

Overview of GM Food and GM Feed authorised in the EU¹¹

	Maize	Soy	Rape seed	Others
Food consisting of, containing or produced from a GMO	5	1	6	1 ¹²
Feed consisting of, containing or produced from a GMO	4	1	3	0

¹¹ Double mentioning of a GMO possible. For instance the GM soybean variety mentioned in the 2 categories is in fact the same.

¹² Riboflavin, to be used as Vitamin B2.



Ritt Bjerregaard kræver mærkning af gènesplejset mad

Fødevarerministeren går nu foran med et krav om mærkning af al gènesplejset mad. EU-Kommissionen har netop fremlagt forslag til mærkningsregler, der bl.a. skal gælde dyrefoder, så det er muligt at se, om det indeholder gènesplejsede ingredienser, og det ser Ritt Bjerregaard som en mulighed for også fremover at mærke forbrugernes fødevarer generelt.

Hvis foderet bliver mærket, bliver det også muligt at mærke kød og mælk fra dyr, der har fået gènesplejset foder (GMO-foder), men det indgår ikke i Kommissionens forslag.

Fødevarerministeren hilser Kommissionens forslag velkommen, men mener ikke, det er vidtrækkende nok og vil i forhandlingerne arbejde for, at mærkning også skal gælde kød og mælk, så mærkningsreglerne kommer forbrugerne til gode.

Fødevarerminister Ritt Bjerregaard (S) siger: "Det skal være den enkelte forbrugers frie valg, om man ønsker at købe produkter, hvor GMO har været anvendt. Vi tillader kun anvendelse af GMO, hvis der har været foretaget en grundig risikovurdering både i forhold til fødevarsikkerhed og i forhold til miljøet. Men da der er tale om en ny produktionsform, som forbrugerne er bekymrede for, skal de have klar og fyldestgørende information, og de skal have muligheden for at vælge. Kravet til mærkning bør derfor omfatte alle produkter – også kød og mælk fra dyr, der har fået foder med GMO."

Dansk mærkningsordning for foder med GMO

I Danmark er der allerede mærkningsregler for foder på vej, og Ritt Bjerregaard har bedt branchen om kommentarer til et konkret dansk forslag.

Det kan tage flere år at få godkendt et EU forslag, men det vil fødevarerministeren ikke vente på, hun ønsker allerede nu, at foder med GMO skal mærkes.

"Der skal være reel mulighed for at vælge mellem foder med og uden GMO", siger fødevarerminister Ritt Bjerregaard. "Det er en uholdbar situation, at man kan risikere at få GMO'er med, når man køber foder. Man køber så at sige katten i sækken, og derfor haster det med at få skabt denne valgmulighed" fortsætter ministeren.

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Fødevarerministeriet

I denne uge:

Udfordringer i det offentlige køkken for fiskeriet

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Danish Minister calls for labelling of genetically engineered food

The Minister for Food will take the lead and calls for labelling of all genetically engineered food. The EU-commission has recently put forward a proposal for labelling that among other things covers animal fodder, so it is possible to see if it consist genetically engineered ingredients, Ritt Bjerregård sees this as an opportunity to label all food products.

If fodder is to be labelled it will also be possible to label meat and milk from animals fed with GMO-fodder, but this is not included in the proposal from the commission.

The Minister for Food welcomes the proposal from the commission, but does not think it is far-reaching enough and will work for a wider labelling of milk and meat in the negotiations, so the regulation can benefit consumers as well.

The Minister for Food Ritt Bjerregård (Social Democrat) says "It should be the choice of the consumers if they wish to buy products where GMO has been used. We only allow the use of GMO if a thorough risk evaluation considering food-safety and environment has taken place. But since this is a new technology that worries consumers they must have clear and thorough information and have the possibility to choose. Labelling should therefore include all products – also meat and milk from animals fed with GMOs"

Danish labelling regulation for GMO-fodder

Denmark already has its own labelling regulation on animal feed coming up and Ritt Bjerregård has asked the fodder industry to comment the Danish proposal.

It can take years before the EU-regulation is approved, but the Minister for Food does wish to wait for that, she would like to see labelling of fodder now.

"There must be the possibility to chose between animal feed with and without GMOs", says the Minister for Food Ritt Bjerregård. "It is a unsustainable situation that one risks to get GMOs when you buy animal feed. The possibility of a free choice is therefore urgently needed" the minister continues.



Warning Signs

Potential Health Risks of Genetically Engineered Organisms in Animal Feed

The string of recent scandals related to the way we feed animals is long. Most recently, the governments of France and Italy have reacted to BSE (mad cow disease) by banning the use of bone and animal meal. Dioxins have been found in chicken feed in Belgium and in France, sewage has been found in animal feed. Hormones and antibiotics are standard components in the high-energy feed mixtures for fast growth and maximum performance of animals raised by industry and farmers.

There have been no fatal or clinical incidences or major problems with the use of genetically modified soya beans and maize or their derivatives in animal feed so far. However there is a growing list of warning signs and increasing evidence that there was no proper testing of these new products, which are now fed to animals in large quantities both in North America and Europe for the third consecutive year.

Antibiotic Resistance

Genetically modified organisms (GMOs) fed to animals today contain genes which make them resistant to antibiotics used for the treatment of diseases in both humans and animals. These genes had been introduced by the genetic engineers as markers for technical purposes. They could severely undermine the effective treatment of diseases if the antibiotic resistance is transferred to bacteria which are harmful to human and animal health.

Scientists¹, biosafety committees and governments have opposed the introduction of GMOs with antibiotic resistance genes. Norway banned them altogether. Austria and Luxembourg have banned Novartis' maize, Switzerland did not even allow a field experiment with a GE potato because it contained a kanamycin resistance gene. From the British Medical Association² to the European Parliament a variety of institutions have demanded a ban of antibiotic resistance genes in GMOs.

Precaution clearly demands that any use of antibiotic resistance genes be prohibited. There is no reason to risk any further health threats from antibiotic resistance to serve short term industry interests.

Transfer of DNA from GMOs to animals or bacteria

There is evidence that DNA from food uptake can survive in animal guts and can even be traced in somatic cells. Such foreign DNA could be traced up to 24 hours after feeding in spleen and liver cells.³ Other research indicates that DNA released from bacteria or food sources within the mouth can be transferred to other oral bacteria.⁴

Allergies

Genetic engineering can confer new allergic potential to crops. A famous example is a soybean genetically engineered with a gene from a Brazil nut. Tests on blood taken from individuals allergic to Brazil nuts unexpectedly revealed that they had a similar allergic reaction to the GE soybean.⁵

The US Environmental Protection Agency did not approve the genetically engineered maize variety "Starlink" of Aventis for human consumption as there is concern about the allergic potential of a toxin it produces (*Bacillus thuringiensis* Cry9C). There is evidence that Cry9C is heat stable and resistant to

degradation in gastric juice, two important indicators of potential allergenicity. Effects of Cr9C on animals and its fate in animal products remain to be examined.

Roundup Ready Soybeans have unexpected properties

In a recent study⁶, US scientists discovered substantial differences in the levels of phytoestrogens between soy beans that are genetically engineered were treated with Monsanto's herbicide "Roundup" and conventional soy. Phytoestrogens are hormone-like substances in plants and are believed to have a positive health effect. Phytoestrogen levels in genetically engineered soy beans were found to be reduced. This is clear evidence that conventional and genetically engineered soya beans are substantially different.

"As a scientist, I wouldn't drink milk from cows fed GM maize..."

The weakness of the scientific basis for genetically engineered crops became obvious at a public hearing in Britain on Chardon LL, another herbicide tolerant maize variety for livestock feed, from the "Starlink" producer Aventis.

At the hearing Professor Bob Orskov, Director of the International Feed Resource Unit in Aberdeen, Scotland, one of the country's leading experts on ruminant nutrition, stated that the scientific case put forward for this GE maize was not adequate; testing was insufficient both in terms of time and variety of parameters. "if the GM maize was approved for commercial growing in the UK, then people would be justified in turning their back on consuming milk derived from it". He added: "As a scientist, I wouldn't drink milk from cows fed GM maize with the present state of knowledge." Another expert witness, Dr Vyvyan Howard, who is head of the Foetal and Infant Toxicology group at the University of Liverpool, told the hearing: "My interpretation is that this GM maize has not been tested thoroughly." He said after examining data from the biotechnology company Aventis, which makes the GM maize, there appeared to be "statistically significant" differences between the fat, protein and fibre composition of its "Chardon LL" GM strain and non-GM varieties⁷

While industry often argues that GMOs in animal feed were extensively tested for safety there are few peer reviewed scientific publications available on longer term animal feeding tests with GMOs

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Patrice Courvalin, *Plantes transgéniques et antibiotiques*, La Recherche No. 308, Mai 1998

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3 Schubert R., Renz D., Schmitz B., and Doerfler W. (1997), Foreign (M13) DNA ingested by mice reaches peripheral leukocytes, spleen, and liver via the intestinal wall mucosa and can be covalently linked to mouse DNA, *Proc. Natl. Acad. Sci. USA*, Vol. 94, pp. 961-966

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7 The Independent (London), October 19, 2000, Pg. 8, "INQUIRY WARNED OVER MILK FROM GM-FED COWS"

81) RR soybeans by Monsanto, 1996: The feeding value of soybeans fed to rats, chickens, catfish and dairy cattle is not altered by genetic incorporation of glyphosate tolerance, Hammond, Bruce G.; Vicini, John L; et al, 'The Journal of Nutrition', Vol. 126, ps. 717-727)

2) Event 176 Bt corn by Novartis, 1998: 38 day feeding to chickens. Brake, J. and D. Vlachos. 1998. Evaluation of transgenic event 176 "Bt" corn in broiler chickens. *Poultry Science* 77: 648-653.

3) RR corn (GA 21) by Monsanto, 2000: 38-40 day feeding in chickens. Glyphosate-tolerant corn: The composition and feeding value of grain from glyphosate-tolerant corn is equivalent to that of conventional corn (*Zea mays* L.). Sidhu, R.S., B.G. Hammond, R.L. Fuchs, J.-N. Mutz, L.R. Holden, B. George, and T. Olson, *Journal of Agricultural and Food Chemistry* 48: 2305-2312

NATIONAL DAIRY COUNCIL
Position Statement
18 September 2000

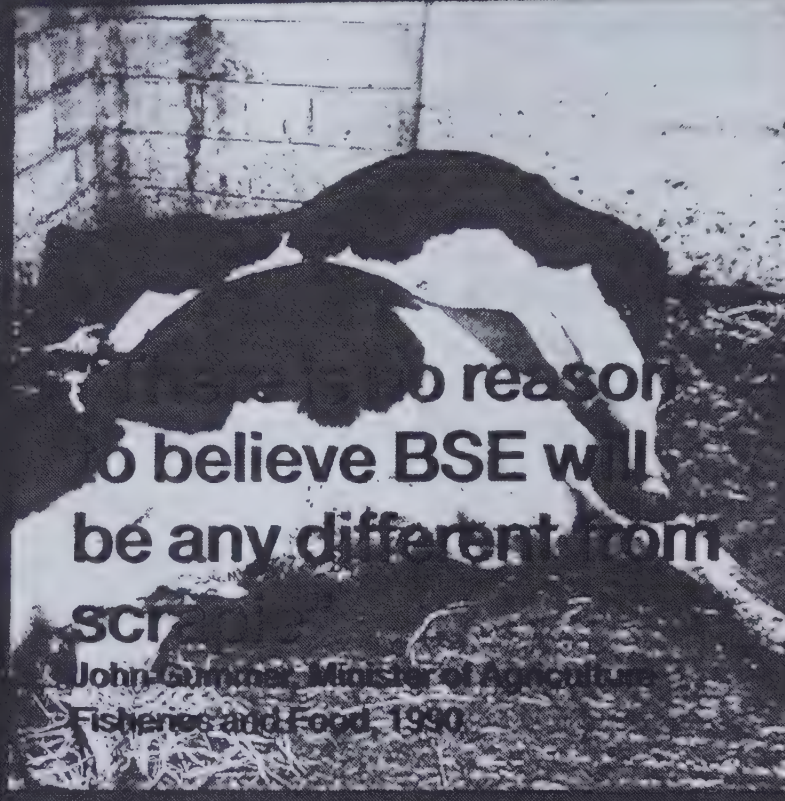
Genetically Modified Animal Feed

The dairy industry recognises the questions being raised by environmental and consumer groups over the use of genetically modified products used in food production and believes that everyone should be given the fullest available information.

Many food-producing animals have been fed on a diet which may contain ingredients derived from GM soya or maize. There is **no scientific evidence** to suggest that genetically modified material survives animal feed processing, crosses the gut wall of a cow, enters the bloodstream and then becomes incorporated into milk. The consumer can continue to have confidence in British milk.

The industry supports the Government and the EU in introducing enforceable regulations covering the labelling of GM crops used in animal feed.

The Government continues to provide the industry with assurances on the safety of GM in animal feed.



"There is no reason to believe that the genetic modification of the maize will give rise to any adverse effects on human health from its use in human food"

John Gummer, Secretary of State for the Environment, 1996

HOW TO DESTROY THE BEEF INDUSTRY AND LEARN NOTHING

From BSE to Genetically Modified Organisms: Science, Uncertainty and the Precautionary Principle

- BSE showed how official decision-making fails to cope with scientific uncertainty. "No scientific evidence" was repeatedly taken to mean "no risk". Consequently risks that could and should have been avoided compromised the safety of the food chain.
- Fundamental questions about the nature of food production of major concern to the public were omitted by a decision making process constrained by a narrow technical view.
- Risks from BSE and genetically modified organisms (GMOs) display striking similarities.
- Statements and mistakes identical to those made with BSE are already being made with GMOs.
- The Government is running political and economic risks in allowing the rapid commercialisation of genetically modified organisms for food production.

If in doubt...hope for the best?

As the BSE crisis developed, the authorities repeatedly cast the burden of proof as “*prove it is unsafe*” rather than “*prove it is safe*”. Consequently decision-makers were always one step behind the progress of the disease through the food chain, as the chronology shows all too clearly. In 1989 the Southwood Report stated: “*From present evidence, it is likely that cattle will prove to be a ‘dead-end host’ for the disease and most unlikely that BSE will have any implications for human health*”.

There was no evidence at the time as to whether cattle would prove to be a dead-end host. Southwood himself conceded that because of the long incubation period it would take at least another 10 years to determine whether the BSE agent could be transmitted to humans. At a time when many major pet food manufacturers had voluntarily stopped using suspected offals in pet food, the Southwood working party did not even recommend a ban to stop these entering the human food supply via mechanically recovered meat, because, according to Southwood “*we felt it was a no-goer*” [with MAFF].

In 1990 the Tyrell Report stated: “*Many extensive epidemiological studies around the world have contributed to the current consensus view that scrapie is not causally linked with CJD. It is urgent that the same reassurance can be given about the effect of BSE on human health. The best way of doing this is to monitor all UK cases of CJD over the next two decades*”. But rather than act cautiously, John Gummer, Minister for Agriculture asserted “*we can say with confidence that beef can be eaten safely by everyone, both adults and children*” and famously fed his 4-year old daughter Cordelia a beef-burger for photographers.

By 1994 CJD levels were double the late 1980s but in the absence of conclusive linkages Gillian Shephard, Minister of Agriculture stated “*I should repeat that the Chief Medical Officer continues to advise that there is no evidence whatsoever that BSE causes CJD and, similarly, not the slightest evidence that eating beef or hamburgers causes CJD*”.



Only in 1996, too late, was the reality of the risk accepted: referring to “*ten cases of a new variant of CJD*”, Stephen Dorrell, Secretary of State for Health announced “*the most likely explanation at present is that these cases are linked to exposure to BSE*”.

Decision-making in the face of scientific uncertainty

Scientific evidence has never excluded the possibility that BSE could be transmitted to humans. Whilst scientists were insisting “*there is no evidence so far*” of BSE being transmitted to the human population, policy-makers preferred to talk of “*zero*” or “*inconceivably low risk*”. These safe assertions were used to publicly justify limited precautionary action.

The evolution of new knowledge and evidence on BSE has important policy analogies with other areas of scientific uncertainty. The lack of scientific knowledge regarding the field behaviour and long-term impact of genetically modified organisms (GMOs), means that current risk assessments cannot be based on conclusive or quantitative evidence.

Despite these uncertainties, safety approvals for the marketing and growing of new GM crops are becoming routine in Europe. Official risk assessments of GMOs have tended to equate the absence of any evidence of risk with the conclusion of no or minimal risk.

We now know from the BSE case that this may prove to be a fallacious and dangerous assumption.

“we can say with confidence that beef can be eaten safely by everyone, both adults and children”

John Gummer, former Minister for Agriculture

GMO risks mirror BSE risks

Long latency The link between BSE and CJD took a long time to show and was established only after active monitoring. Possible harm from GM foods, such as the commodity crops now entering the market, may take even longer to detect and establish.

Irreversibility As with BSE, the effects of GM could be serious and irreversible. Since genetically modified crops can out-cross with non-GM crops and wild relatives it may prove impossible to recall problem genes once released into the environment.

Scientific uncertainty As with BSE, there is considerable scientific uncertainty about the potential impacts of GM. GMOs mirror BSE in the way that scientific analysis assesses the risks as statistically small (unlikely or very unlikely) but the “*improbable*” case is potentially catastrophic.



Necropsy of cow's head with BSE.

“there is no evidence so far” of BSE being transmitted to the human
“inconceivably low risk”.

The flawed response to BSE is being repeated with GMOs

The pretence that the new practices and products are no different

The scientific and policy establishments made assumptions about BSE based on their knowledge of scrapie. These were subsequently shown to be misplaced. The notion of "substantial equivalence" is the principle criterion deployed for assessing the safety of GM foods. If conventional chemical analysis and short-term toxicity tests on a GM food show similar results to its non-GM 'equivalent' then it is assumed to be as safe. This framework would not have picked up the scrapie prion in sheep offal and is equally inadequate for GM foods.

No evidence, no risk Throughout the BSE crisis "no evidence" was equated, implicitly, with "no risk". This implicit assumption of safety is now echoed in official reassurances over GM crops and foods.

"There is no reason to believe BSE will be any different from scrapie"

John Gummer, Minister of Agriculture Fisheries and Food, in letter to Lady Wilcox, Chairman National Consumer Council, 15.5.90

"The Scientific Committee on Food have confirmed that there is no reason to believe that the genetic modification of the GM maize will give rise to any adverse effects on human health from its use in human food"

John Gummer, Secretary of State for the Environment, in letter to Peter Melchett, Executive Director Greenpeace, dated 23 Dec 1996

An experiment on the public and the environment

Laboratory tests or field trials leave considerable uncertainty. "Proof" will only come after GMO release into the environment when the long term effects on consumers can be assessed. The BSE crisis showed that waiting for this "proof" is not a defensible policy.

"The observations that 'nothing happened' in these hundreds of tests do not say much. In many cases, adverse impacts are subtle and would almost never be registered in scanning a field...the field tests do not provide a track record of safety but a case of 'don't look, don't find'."

M Mellon & J Rissler (1995) Transgenic crops: USDA data on small-scale tests contribute little to commercial risk assessment, Bio/Technology 13:96

Saying 'NO' Because science cannot give proof of safety, judgements have to be made about risk and its acceptability. But fears about undermining consumer confidence or damaging economic interests during the BSE crisis led to reassurances disproportionate to the degree of certainty which then existed.

With GMOs too, there is a temptation to deny any risk at all: *"The information should state explicitly - There is no risk inherent in the technology itself. Thus, there are fool-proof safeguards that modified micro-organisms cannot engender diseases in man or the environment."*

DM Conning (1993) Biotechnology - influencing public opinion. BCPC Monograph No 55: Opportunities for molecular biology in crop protection pp299-304

Even technical decision-making about GMOs is value-laden. There is a "taken-for-granted" assumption in the regulatory community that GM technology is the basis for future economic growth and, therefore, desirable. Those who advise governments on the risks of GMOs tend to be already working actively in the field of gene technology. Whilst the assessment is able to take advantage of their experience, it is also likely to be blinkered by their inability to question the underlying assumptions of GM.



"...the field tests do not provide a track record of safety but a case of 'don't look, don't find'."



Soya is used in 60% of all our food products.

Who answers the 'Big Picture' questions? The public were largely unaware, and subsequently shocked to discover, that animal remains were being fed to cattle and were responsible for causing BSE. There was an implicit assumption that the public would be broadly supportive of measures that improved productivity. Subsequent outcry demonstrated that the public did not accept that the risks of such an "unnatural" practice were justified by the increased "efficiency" of meat production.

A similar disparity between public and official perceptions of GMOs is beginning to emerge. There is mounting evidence that the public is anxious about genetic modification. Many applications are seen as trivial and not justified in terms of the risks involved. Questions are raised about alternatives to GM and about whose interests are being served by developments.

Policy-makers ignore such societal sentiments at their peril. If subsequent problems do arise with the technology then it is not only the environment and public health at risk but the political, industrial and economic institutions which have under-written its development.

population, policy-makers preferred to talk of "zero" or



London's leading chefs line up behind Nico Ladenis to protest about genetically modified food at the launch of a Greenpeace billboard campaign.

The analogies between the BSE crisis and the introduction of GM foods highlight a number of critical scientific, economic and political risk factors:

- the potential for serious harm which is unpredictable, irreversible and unmanageable
- a strong commercial dynamic driving rapid innovations
- official assertions of safety based on incomplete knowledge
- disparity between the basis on which the public and official institutions determine safety
- narrow risk assessment which fails to address the complex interactions between the technology and society
- public distrust in risk assessment and the institutions responsible for it
- a scientific and political culture incapable of responding to unforeseen outcomes

These factors represent a formidable political challenge to the existing risk culture, and show that current decision-makers and the UK Government are running considerable political risks in allowing GM food into the system.

Risk avoidance

A re-evaluation of the risks, need and justification for GM foods, one that extends beyond what is normally thought of as "risk assessment" is urgently required. Public health and the environment should be at the forefront. The approach adopted must be one of risk avoidance, not to hope that risks from GMOs will prove manageable once permitted into the system.

The lessons of the BSE crisis reverberate wider. The relationship of scientific expertise/advice to public policy is now under scrutiny. Scientific uncertainty should never again be so publicly disavowed nor the limitations to knowledge so actively concealed. Commercial excitement should not over-ride public concerns. Nor should safety assertions be clouded by political or commercial calculation.

We must learn from the BSE fiasco.

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Compiled by Greenpeace based on a report by Julie Sheppard

Bad Science, Bad Decisions

The evidence against Aventis' GM maize

Introduction

In August 1998, the biotech company Aventis received European Union approval to import and market its genetically modified (GM) maize, known as 'T25'. Earlier that year, Aventis used a shortcut in European law to be allowed to sell T25 maize for use in human food. Aventis have also been making strenuous attempts to get varieties of T25 maize approved for commercial growing on UK farms.

In March 2000, the UK Government proposed that a variety of T25 maize, called Chardon LL, be licensed for commercial growing in the UK. Friends of the Earth (FOE), along with many other organisations and individuals, objected to this and forced the Government to hold public hearings. In the course of FOE's investigations into the T25 approvals process, serious failings in Government procedure and scientific research were uncovered. These are so serious that FOE believes the approvals for T25 should be immediately revoked pending a review. This briefing outlines the evidence uncovered by FOE.

Background

What is T25 maize?

T25 maize has been genetically modified by Aventis to be

tolerant to the herbicide glufosinate ammonium (marketed as Liberty or Basta), also produced by Aventis. 'T25' is the code given by Aventis to this type of GM maize. Aventis has already produced two varieties of T25 maize (Chardon LL and Sheridan) that it wants to be grown in the UK. If grown, they will be used to produce 'silage' (produced by fermenting the whole plant) and fed to cattle. The Chardon LL variety has been proposed by Aventis for seed listing by the UK Government so that it can be sold to farmers and grown in UK soil. Chardon LL is currently being grown in the Government sponsored farm scale trials programme and Aventis hope to have seed listing approval, allowing commercial growing, by the end of the trials in 2003.

T25 maize contains a gene derived from a rare strain of a soil bacterium found in Cameroon. The gene causes the GM maize to produce a novel protein called Phosphinothricin Acetyl Transferase (PAT). This 'PAT' allows plants to break down the herbicide, glufosinate ammonium, which would otherwise kill them. This means that farmers will be able to spray T25 maize fields with glufosinate, killing all the plants in the field apart from the GM maize.

The EU Scientific Committee on Plants (SCP) has noted that the PAT protein is completely new to the human and animal food chains because it *"is not present in humans, animals, intestinal micro-organisms or in traditional food and feed plants"*. [1]

The EU Marketing Approval (for seeds and grains)

Before any genetically modified organism (GMO) can be sold in the European Union, it must get marketing approval. This is granted under the provisions of the Deliberate Release Directive (90/220/EEC). Aventis applied through France for such approval for T25 type maize in 1996 and this was granted in 1998. Marketing consent allows the company to import, grow, process and sell the GM seeds and grains for use in animal feed and in non-food uses, such as starch used in industrial processes. This approval is a pre-requisite for placing the GM crop onto the UK National List of Seeds. To sell a GM crop for use in human food, however, Aventis had to get an additional approval under the EU Novel Foods Regulations (see below).

The EU 'Novel Foods' Approval (processed foods)

The Novel Foods Regulation (259/97) provides two ways for GM products to obtain approval for use in human food:

1. Companies can apply for approval for the whole GM food, e.g. sweet corn cobs, maize flour or tinned sweet corn. This requires a full safety assessment and all EU Member States are involved in considering the safety of the GM crop for use in food. So far, no GM crop has gained approval by this mechanism.
2. The second way is a 'fast track' route. If the 'competent authority' of one member state gives a favourable opinion of the food, the company simply notifies the European Commission (EC) that it is going to start selling the GMO in human food. There is no formal procedure for consultation with other Member States or for them to object. This fast track procedure is only intended for highly processed foods produced from GM crops, meaning foods which do not contain GM protein or DNA in the end product, for example, maize oil or starch.

In 1998, Aventis used this 'fast track' route to get approval for T25 maize products.

Flaws in Aventis' Science

In support of its applications for marketing approval Aventis submitted reports and details of studies it had commissioned to examine the safety of T25 maize. FOE's examination of this evidence revealed major flaws in Aventis' science.

Compositional differences

Aventis has claimed that the composition of T25 maize grain is '*not materially different*' to non-GM maize[2]. However, its own research showed statistically significant differences in the levels of carbohydrate, protein, fibre, amino acid, fatty acids and fat content between T25 and non-GM maize[3]. In the case of two of the fatty acids, the levels recorded for T25 maize were different to any other maize study ever published[4]. For an unknown reason, Aventis did not test the levels of all the amino acids found in maize - two were missed out. Of those that were tested, 3 had raised levels compared to the non-GM maize. The two amino acids not tested are similar in structure to those that were and as a result it might be expected that their levels would also be raised[5]. Neither the EU Scientific Committee on Plants (SCP) nor the UK's Advisory Committee on Novel Foods and Processes (ACNFP) picked up that T25 maize clearly did not have a similar composition to non-GM maize.[6,7]

The reason for examining compositional differences between GM and non-GM crops is because of the risk that the insertion of novel genes could cause unexpected changes to the way in which the natural genes in the organism function[8]. In theory, this could cause changes to the composition of the crop, or changes in the levels of naturally occurring toxins, or the production of unexpected toxic compounds[9]. It is essential that all these reasonable possibilities are thoroughly checked before a GM crop is allowed to enter the human food and animal feed chain.

Anti-nutritional substances

Anti-nutritional substances in foods block the take-up of nutrients from the diet of animals and humans. Maize contains a naturally occurring substance called phytic acid, which blocks the uptake of iron in pigs. However, Aventis checked for levels of phytic acid in T25 maize silage. A pointless exercise as T25 can only ever be fed to

cattle and sheep. Cattle and sheep have completely different digestive systems to pigs, and for them phytic acid is not a problem. Aventis' test was therefore irrelevant to establishing the effect of anti-nutritional compounds on the animals to which T25 maize would be fed.

The safety of T25's 'novel' protein

Experiments were also conducted by Aventis to find out how safe the novel 'PAT' protein would be for human and animal consumption. FOE commissioned independent experts to examine the robustness of these tests.

One Aventis study examined how quickly the novel protein was broken down in the gut by gastric juices. (If a protein takes a long time to break down this indicates that it may be toxic, or cause allergies). The experiment was conducted in a laboratory simulation of digestion[10]. Dr Vyvyan Howard, Head of the Fetal and Infant Toxicology-Pathology Group at the University of Liverpool, examined this test and concluded that the experiment was unrealistic because the acidity of the test tube simulation was much higher than would be found in a real animal gut[11]. This gave the impression that the PAT protein would break down more quickly than in reality. The EU's SCP has also criticised this approach because it is not a good representation of what happens in real animals eating the novel food as part of their diet[12].

Another toxicity study by Aventis involved feeding the PAT protein to rats for 14 days to look for toxicity effects. Despite Aventis' intention to grow T25 maize in the UK for use as cattle feed they did not examine the toxicity of T25 for cattle. The relevance of the rat study is questionable since the digestive system of rats (which have one stomach) is completely different from cattle (which have four stomachs). In 1999, the UK's ACNFP and Advisory Committee on Animal Feedingstuffs (ACAF) both recognised the limitations of this approach. They stated that "*feeding trials carried out with monogastrics [e.g. rats] would not be directly applicable to ruminants [cattle]*" [13].

A further problem with the rat study was that the 'PAT' protein used was actually extracted from GM oilseed rape instead of from T25 maize[14]. Dr Howard, at the University of Liverpool, also criticised the examination of

the PAT protein in isolation, rather than as part of the whole plant. He stated, "*By feeding the purified PAT-protein, rather than the whole plant, this experiment is specifically designed to NOT detect the pleiotropic effects [effects on the functioning of natural genes resulting from the genetic modification] which should be anticipated.*"[15]

In the end, Aventis were able to claim nothing more than that, "*Based on the results of this study ... there is no evidence of toxicity for PAT-protein when administered to rats in their feed ... for a period of 14 days*"[16]

'Suspicious' trends in T25 feeding study

Only one study was conducted by Aventis into the effects of eating whole T25 maize grains. T25 maize and normal maize were fed to two groups of broiler chickens for 42 days and their growth and performance were measured[17]. Twice as many chickens died in the group fed T25 maize, although this result was not statistically significant. The study also revealed a trend showing greater variation in body weight and weight gain for the group fed GM T25 maize compared to those fed normal maize. FOE asked independent experts from Bristol University to examine the study. They commented that both the mortality and weight trends were 'suspicious' and should have prompted further investigation[18]. They also noted that only very large effects on bird weight could have been detected because the experiment was only repeated 4 times instead of the minimum of 14 times which they would have recommended[19].

The scientists stated that, "*.. the reporting and the design are wholly inadequate and this became really obvious after only five minutes of reading.*"[20]. They concluded that, "*Put simply, this study as reported is inadequate in terms of providing any evidence or conclusions. It is not of a standard that would be acceptable for publication in a scientific journal*", and "*It is very basic science that has fallen down at this stage, and I am amazed that it has not been picked up.*"[21]

Environmental impacts

Only one page out of Aventis' 85-page application examined the potential environmental impacts of T25 maize. Only two issues were addressed: whether T25

maize could become dominant in agricultural habitats and whether it could become invasive in natural habitats. The UK Government's own wildlife advisor, English Nature (EN), has raised important concerns about the impact of GM crops on UK wildlife. EN has stated that the introduction of herbicide tolerant crops "could be the final blow for species like the skylark, the linnet and the corn bunting"[22]. Such concerns were never addressed in Aventis' application. Neither was mention made of what effect any changes in agricultural practices associated with the GM maize may have, e.g. farmers spraying more or less pesticides or spraying at different times in the crop cycle.

Further issues which are not addressed include:

- contamination of non-GM maize crops by cross pollination from T25 maize crops;
- the impact on wildlife through less food (in the form of weeds) being available in T25 fields;
- the effects of T25's accompanying herbicide, glufosinate;
- and the potential for 'horizontal' transfer of novel genes from the crop plant to bacteria in the soil.

In addition, four years after T25 maize received marketing approval and was considered "safe" for the environment the crop is still being tested in the Government's farm scale trials programme for environmental impacts such as cross pollination and effects on farmland wildlife.

In 1998, the environmental risk assessment for EU marketing approvals for GM crops was made more rigorous. The revision resulted from an emerging consensus among EU member states that the safety provisions within EU Directive 90/220 were inadequate. It was considered so important, that the EU Council of Environment Ministers agreed that these more rigorous procedures should be adopted immediately, in advance of any new legislation. This change occurred just 4 months after Aventis received marketing consent for T25 maize. New provisions relevant to T25 maize included: the contamination of other maize crops, effects on biodiversity from changes in crop management and a requirement to submit a monitoring plan. Therefore, FOE considers that had the application for T25 maize been made under these new, more rigorous procedures it would not have been approved.

The failures of Government and scientific advisors

In addition to the inadequacies of Aventis' evidence mentioned above, Friends of the Earth has deep concerns about the actions of UK and EU officials and scientific advisors throughout the approvals process. These concerns are outlined below:

The Approval for Use in Human Food

UK Committee approves T25 before full information is available

On 8th January 1998, Aventis notified the Commission that it was placing on the market certain processed foods derived from T25 maize. As stated earlier, by using the fast-track procedure Aventis were able to market their GM food without a full safety assessment under the Novel Food Regulation 258/97. Instead, Aventis relied on a report produced by the UK's ACNFP in 1996, before the Novel Food Regulation was adopted.

Having only seen an incomplete draft of the rat study (mentioned above), the ACNFP report gave T25 maize a favourable opinion and cleared it as 'substantially equivalent'. The Committee did not even see the feeding study on chickens (referred to earlier) until at least 9 months after it gave its approval. FOE considers that the ACNFP's assessment was not based on all available evidence and should not have been accepted by the EU.

Timing of Aventis' novel foods notification

In December 1997, one month *before* Aventis notified the EC of its intention to market T25 processed foods, the ACNFP decided that only "*highly refined foods derived from GM crops, such as hot pressed oil, white sugar and starch*" should be allowed onto the market under the fast-track procedure, whereas "*all other ingredients derived from GM crops, such as flours and protein extracts, should be given a full safety assessment as they may not have been subjected to the processing associated with highly refined products and could therefore contain novel DNA*"[23]. Aventis, however, went ahead one month later and notified several T25 maize foods which were not "highly refined" and can be expected to contain GM protein or DNA. *One week after* Aventis'

notification, the EU member states agreed that GM products could not contain GM protein or DNA under the fast-track procedure.

As a result of Aventis making their fast-track notification during the 6-week period between the ACNFP and EU meetings, T25 maize products are very probably already in the EU human food chain without a full safety assessment under the Novel Food Regulation.

EU Committee rules in favour of T25 without examining the evidence

In December 1999 the Italian Government issued an opinion that Aventis had acted unlawfully by using the fast-track notification procedure for processed foods. By August 2000 the Italian Government had invoked the "Safeguard clause" (Article 12) of the Novel Foods Regulation and issued a decree suspending the trade and use of products of T25 maize.

The European Commission referred the Italian concerns to the European Scientific Committee on Foods (SCF). The Committee decided that the Italian evidence did not "provide detailed scientific grounds for considering that the use of the novel foods in question endangers human health".[24] However minutes show that the SCF never actually looked at the original evidence produced by Aventis. In addition, the draft SCF minutes stated that "additional evidence for safety would be considered desirable if the products [underwent] a reevaluation."[25], but this was removed from the final document.

Recommendations for cattle feeding studies ignored

Despite the fact that fodder maize could make up to 75 per cent of a cow's diet, there is no evidence that Aventis examined the safety of T25 maize for ruminant livestock. The only studies conducted related to animals with a single stomach digestive system: chickens and rats.

The US Food and Drug Administration has pointed out that since 50-75 per cent of a cow's diet could consist of maize, any change in the chemical composition that is considered insignificant for human consumption may be very significant in an animal's diet.[26] Aventis' own analyses found significant differences in the level of fat, protein, Acid Detergent Fibre and Neutral Detergent Fibre between T25 maize silage and its non-GM counterpart.

In the wake of the BSE crisis, UK Government experts called for feeding studies on cattle to be part of the GM

approvals process. In 1996, a memo from the Government's experts on animal feed, the Interdepartmental Group on Novel Feed Developments (IGNFD) stated that "*The current concerns over BSE mean that MAFF must take the precautionary approach ...*". They also commented that "*Target species testing is a requirement of all new feed additives and ingredients therefore the inclusion of this as a mandatory part of GMO testing seems entirely justified.*"[27] and "*The extension of safety testing on GM products to include target animal assessment should be applied to Glufosinate tolerant maize [T25]...*"[28] The call for safety testing to be extended to cattle was backed up by the EU's SCP in 1998[29] and the UK's Advisory Committee on Animal Feedingstuffs in 1999[30]. However, these calls have been ignored.

The Approval for Environmental Safety

EU scientific committee rushes through task of establishing T25 safety

When Aventis made its application for marketing consent approval for T25 maize in 1996, many countries raised concerns[31], including:

- the effect of growing herbicide tolerant maize and its associated herbicide on agricultural biodiversity
- the environmental and health impacts of glufosinate ammonium herbicide
- the impact of the herbicide, including transfer of the PAT-gene to micro-organisms, on soil ecosystems
- the presence of the disrupted ampicillin resistance gene in the T25 maize
- the possibility of unexpected allergens and toxins, and the quality of screening for these.

Eventually, the matter was referred to the newly formed SCP. At the same time as examining the evidence for T25 maize, the SCP had to look at 3 other GM crops. This meant they had to examine 4 very large dossiers of evidence. The lack of experience of the Committee is highlighted by the fact that the SCP "*was requested to gain, from the analysis of these first four dossiers, the experience necessary for establishing standardised analysis criteria, evaluation methods and risk assessment approaches*"[32] [our emphasis].

The Committee completed their task with incredible speed. Only 7 weeks later it delivered its official opinion on all four GMOs. The chairman of the Scientific Steering Committee *"congratulated the SC-Plants for having succeeded in handling the 4 large dossiers within such a short period and having prepared the 4 opinions earlier than expected."*[33]. Considering the speed with which the four opinions were delivered, and also that the majority of the Committee members had other jobs apart from their duties on the Committee, there must be a question over the quantity and quality of time devoted to the examination of T25 and the other 3 GMOs.

UK civil servants pre-empt the advice of scientific advisors

In June 1996 Aventis' application for T25 was to be considered for its environmental safety in the UK by the Advisory Committee on Releases to the Environment (ACRE). On 20 June draft advice from ACRE that the product did not pose a risk to the environment or human health was circulated to other Government departments by civil servants in the ACRE Secretariat. **This advice was circulated the day before ACRE members had even seen the application.**

In effect, Department of Environment civil servants had pre-empted the advice of their scientific advisors

Conclusion

The consideration given to Aventis' applications to market T25 maize seeds, grains and processed products in the EU has not been thorough. Glaring deficiencies in the evidence presented by Aventis itself were not picked up or were ignored. The safety of T25 maize for ruminant livestock was given no more than a cursory consideration, despite the recommendations of various scientific advisers. No consideration was given to the indirect impacts of T25 maize on the environment. A closer examination of the GM approvals process has revealed a catalogue of bad decisions and bad science.

Since Aventis' T25 maize was approved by the EU in 1998, there have been changes in the way that the safety of GM crops is assessed. The Novel Foods definition has been clarified and the Deliberate Release Directive (90/220) has been revised and tightened. Under these new requirements T25 maize would not have been approved as

safe.

The safety of T25 maize has not been demonstrated, for humans, for animals, or for the environment. In short, it should be recalled and required to undergo a full safety assessment. It is imperative that the UK Government accepts the mistakes of the past and takes decisive action to prove that it has the interests of safety at the forefront of its GM policy. The Government must revoke the marketing consent and novel foods approval for Aventis' T25 maize.

Take Action

Please write to the Prime Minister to ask him to revoke the marketing consent and novel foods approval for Aventis' T25 maize:

The Right Hon Tony Blair MP
10 Downing Street
London
SW1A 2AA

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Further Information

Further information on the issues and events surrounding GM crops is available on our website: www.foe.co.uk/campaigns/food_and_biotechnology/

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Splitting headache

Monsanto's modified soya beans are cracking up in the heat

IT SEEMS barely a week goes by without another piece of bad news for the agribiotech giant Monsanto. Now researchers in the US have found that hot climates don't agree with Monsanto's herbicide-resistant soya beans, causing stems to split open and crop losses of up to 40 per cent.

This could be a serious blow to the St Louis-based company, which sees Brazil and other Latin American countries as major markets for its soya beans. "It has the potential to be quite a problem," says Bill Vencill of the University of Georgia in Athens.

Vencill examined the effects of heat on the engineered soya beans after farmers in the southern state alerted him to unexpected crop losses. He realised that most severe losses occurred during Georgia's two hottest springs since the beans were launched in 1996. "In the years we saw the problems, the soils were reaching 40 to 50 °C," says Vencill.

His team replicated these conditions in laboratory growth chambers, comparing the hardness of the Monsanto plants with that of conventional strains of soya bean. In soils that reached only 25 °C during the day, the genetically modified Monsanto beans grew just as well as conventional beans. But in warmer soils, the Monsanto plants appeared stunted. And in soils reaching 45 °C, the differences were marked (see Figure). Vencill described the findings at a meeting of the British Crop Protection Council in Brighton this week.

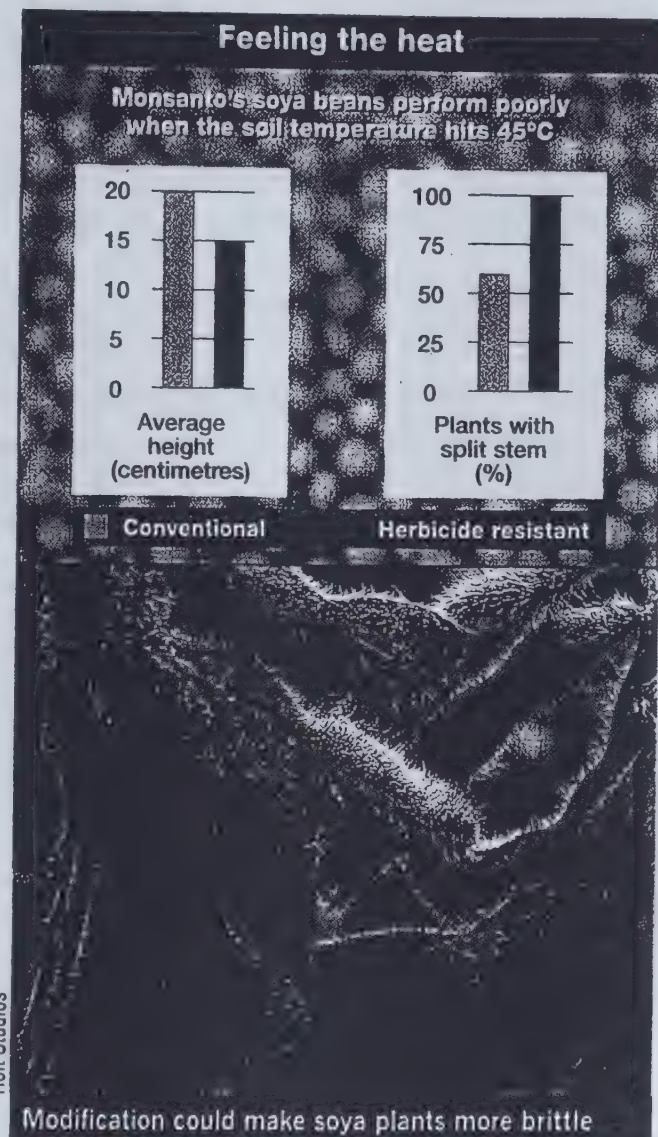
"We saw lower heights, yields and weights in the Monsanto beans," says Vencill. Worse still, stems of virtually all the Monsanto beans split open as the first leaves began to emerge compared with between 50 and 70 per cent of the other test plants. This same phenomenon had occurred on farms, but had been blamed on fungal disease. "Instead, we think the stem splits, and it exposes the plant to secondary infection," says Vencill.

Vencill suspects that the phenomenon is the result of changes in plant physiology caused by the addition of genes making the beans resistant to glyphosate, the herbicide marketed as Roundup by Monsanto. Plants carrying these genetic alterations

have been shown to produce up to 20 per cent more lignin, the tough, woody form of cellulose. "We think it might make the plants more brittle," says Vencill.

Intriguingly, he found that plants resistant to a different herbicide, gluphosinate, were not affected by the heat, so he concludes the problem must be peculiar to glyphosate resistance. "It's not genetic modification per se that's causing the effects," he says.

Vencill says that the bacterial enzyme that imparts resistance to glyphosate affects a major metabolic pathway in the plant, and has the side effect of sending lignin production "into overdrive".



Gluphosinate resistance, by contrast, is achieved using a gene that simply enables plants to break down the herbicide.

Monsanto says it can't comment in detail on Vencill's results "until we've seen a published and peer-reviewed article". But a spokesman suggests that farmers might avoid the problem by choosing a variety of engineered soya bean that is better suited to hot conditions.

Andy Coghlan

PRODUCTION AGRICULTURE

Glyphosate-Resistant Soybean Cultivar Yields Compared with Sister Lines

Roger W. Elmore,* et al

March / April 2001

CONCLUSIONS AND IMPLICATIONS

“Yields were suppressed with GR soybean cultivars. Our other work showed that there was no effect of glyphosate on GR cultivars (Elmore et al., 2001). The work reported here demonstrates that a 5% yield suppression was related to the gene or its insertion process and another 5% suppression was due to cultivar genetic differentials.

Producers should consider the potential 5 to 10% yield differentials between GR and non-GR cultivars as they evaluate the overall profitability of producing soybeans.

Cultivar choices are best based on (1) previous weed pressure and success of control measures in specific fields, (2) the availability and cost of herbicides, (3) availability and cost of herbicide-resistant cultivars, and (4) yield, and not solely on whether cultivars are herbicide resistant.

Based on our results from this study and those of Elmore et al., 2001, the yield suppression appears associated with the GR gene or its insertion process rather than glyphosate itself.”

ABSTRACT:

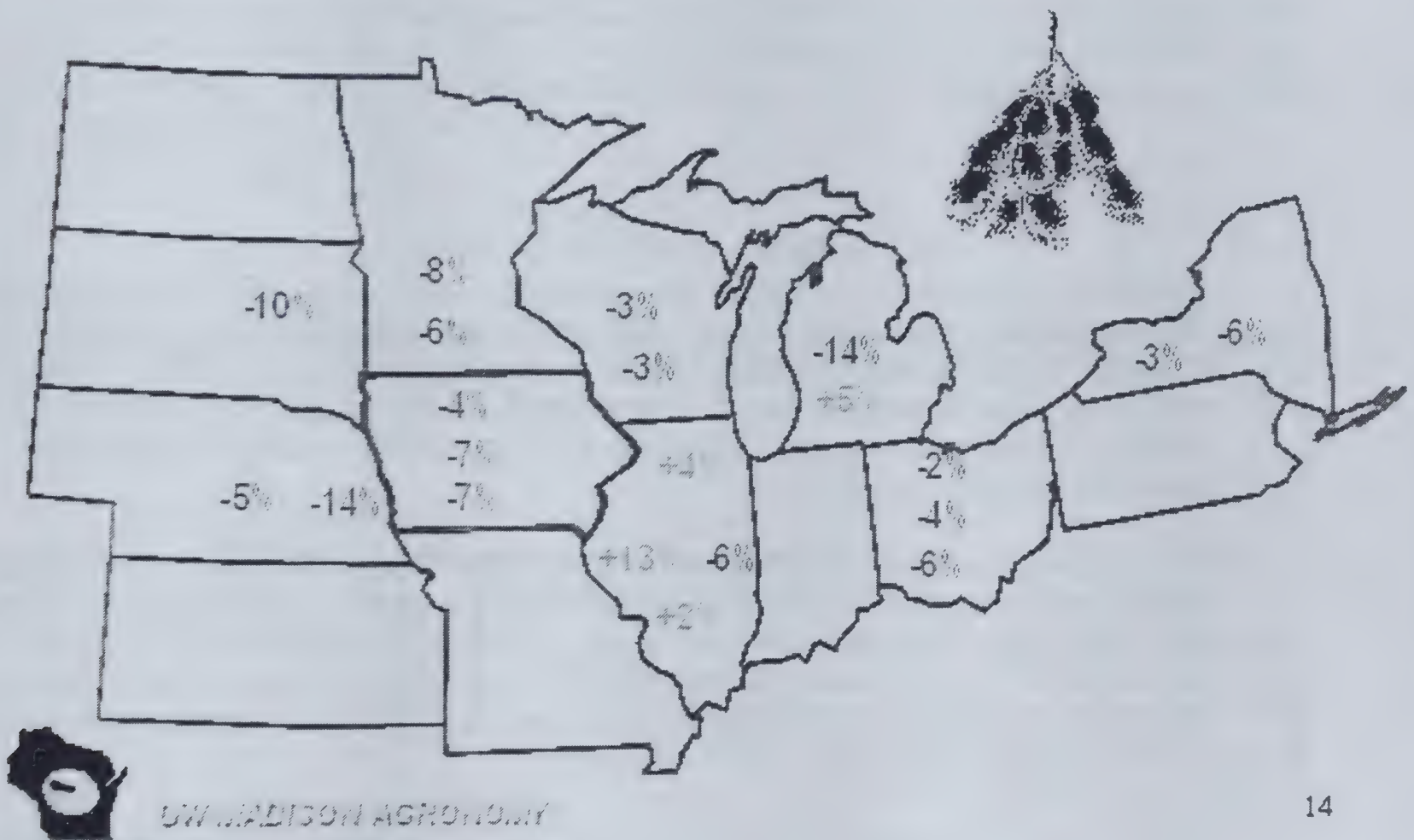
“Herbicide-resistant crops like glyphosate resistant (GR) soybean [*Glycine max* (L.) Merr.] are gaining acceptance in US cropping systems. Comparisons from cultivar performance trials suggest a yield suppression may exist with GR soybeans. Yield suppression may result from either cultivar genetic differentials, the GR gene/gene insertion process, or glyphosate. Yield suppression is probably not effected by glyphosate. Yield suppression due to the GR gene or its insertion process (GR effect) has not been reported.

We conducted a field experiment at four Nebraska locations in 2 yr to evaluate the GR effect on soybean yield. Five backcross-derived pairs of GR and non-GR soybean sister lines were compared along with three high-yield nonherbicide-resistant cultivars and five other herbicide-resistant cultivars.

Glyphosate resistant sister lines yielded 5% (200kg ha⁻¹) less than the non-GR sisters (GR effect). Seed weight of the non-GR sisters was greater than that of the GR sister (in 1999) and the non-GR sister lines were 20mm shorter than the GR sisters. Other variables monitored were similar between the two cultivar groups. The high-yield, nonherbicide-resistant cultivars included for comparison yielded 5% more than the non-GR sisters and 10% more than the GR sisters.”

1998 WISCONSIN SOYBEAN VARIETY TESTS

Relative Performance of "Roundup Ready" vs. Conventional Soybean Varieties in the Northern US - 1998



<http://www.uwex.edu/ces/soybean/>

GREENPEACE BACKGROUND INFORMATION

Roundup Ready Soya: Incomplete data, missing evaluation and insufficient controls

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August 15. 2001

Summary

Monsanto's genetically modified or genetically engineered (GE) Roundup Ready (RR) soya was first approved for planting in the USA 1994 and subsequently in Canada, Argentina and Mexico. It was granted market approval (for import and processing into non-viable soya bean fractions only) in the EU in 1996¹ and in Japan². Consent was granted based on the RR soya containing a single copy of a specific novel gene insert.

Subsequently, in May 2000, it came to light that additional fragments of the foreign DNA insert were present. Monsanto submitted a report³ detailing these additional fragments and claiming that these fragments were unlikely to be functional and hence did not pose a problem. Relevant EU authorities have thus far avoided the question of the illegality of Monsanto selling a product that contains gene inserts that were never approved.

Now, a new scientific report⁴ shows that this RR soya contains an additional segment of DNA adjacent to the primary insert that is unrecognisable. It could be scrambled plant DNA or DNA from unknown sources. The function of this unidentified DNA is unknown, untested and unapproved.

Monsanto failed to provide precise and complete information regarding the characterisation of the insert of RR soya when filing its application for market approval in 1994. Monsanto failed to disclose the presence of two additional fragments of the insert and the presence of unidentified DNA. Crucial information such as the source and function of the unidentified segment of DNA is still missing.

The GE soya currently being planted in the USA, Canada and Argentina and exported as food and animal feed does not genetically match that granted marketing consent in the EU. The original risk assessment for this GE soya has not taken into account these additional inserts.

Presence of additional inserts – May 2000

Recently, a Belgian scientist, Dr. Marc De Loose, and his team developed a new precise, fast and inexpensive method to characterise the DNA of the inserts of GE crops and the regions of plant DNA flanking the inserts. When he examined Monsanto's RR soya, Dr. De Loose discovered that his genetic map did not match the RR soya that had actually been approved in the EU: two additional fragments of the insert were present in the plant. These additional inserts comprised a 250 base pair⁵ fragment (of the CP4 EPSPS gene) adjacent to the principal insert and a 72 base pair fragment (also of the CP4 EPSPS gene) as a second insert. Dr. De Loose informed Monsanto and the Belgian authorities about his discovery. Monsanto eventually informed the UK⁶ competent authority, the Food Standards Agency (FSA) on 18 May 2000⁷.

Unidentified DNA – August 2001

New information on the sequence of the DNA either side of the principal insert has just been published in a peer-reviewed scientific journal³ by a team led by the same scientist, Dr. De Loose. This study has found further serious abnormalities with the DNA in RR soya.

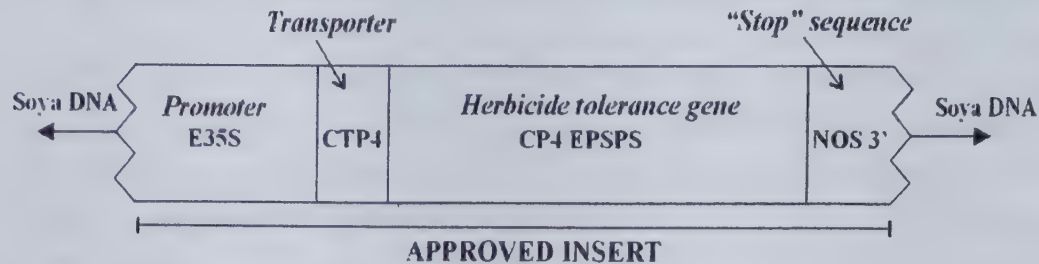
In response to the discovery of the first additional inserts, Monsanto submitted a report in May/June 2000² to the relevant committee of the UK FSA, the Advisory Committee on Novel Foods and Processes (ACNFP). This report gave detailed characterisation of both the additional inserts and the sequence of the plant DNA either side of the inserts (the flanking or junction regions). The Monsanto report sequenced the flanking region beyond the additional 250 base pair fragment adjacent to the principal insert. This DNA sequence was labelled as "soybean genomic DNA". In their report, Monsanto did not give any information on how their conclusion of "soybean genomic DNA" was reached, nor of how the unmodified soya control was used to verify this result.

Dr. De Loose obtained the same sequence (99 % similarity) for this DNA flanking region but then demonstrated that this region of alleged "soybean genomic DNA" was not present in the unmodified soya plant. The sequence presented by Dr De Loose went further than the 415 base pairs of the flanking region in the Monsanto report and only reached recognisable soya plant DNA after 534 base pairs (see Figure).

This 534 base pair sequence does not match with any known DNA. The authors suggest that this DNA could be scrambled plant DNA or a large deletion of plant DNA during integration of the insert, or it could also be a segment of DNA from an unknown source. Therefore, the question as to what exactly is in Monsanto's soya remains unanswered.

Schematic Overview

a) Approved DNA insert as described by Monsanto in their original EU application for marketing (from Monsanto, 2000)². The function of each individual component of the insert is stated in *italics*.



b) Unapproved, multiple DNA inserts and unidentified DNA as now revealed (unapproved DNA is shaded). Two additional, unapproved inserts are present: a 250 base pair (bp) fragment of CP4 EPSPS attached to the main insert and a separate 72 bp insert of CP4 EPSPS (Monsanto, 2000)². Adjacent to the unapproved 250 bp insert is the newly discovered (Windels et al. 2001)³ 534 bp of unidentified, unapproved DNA.

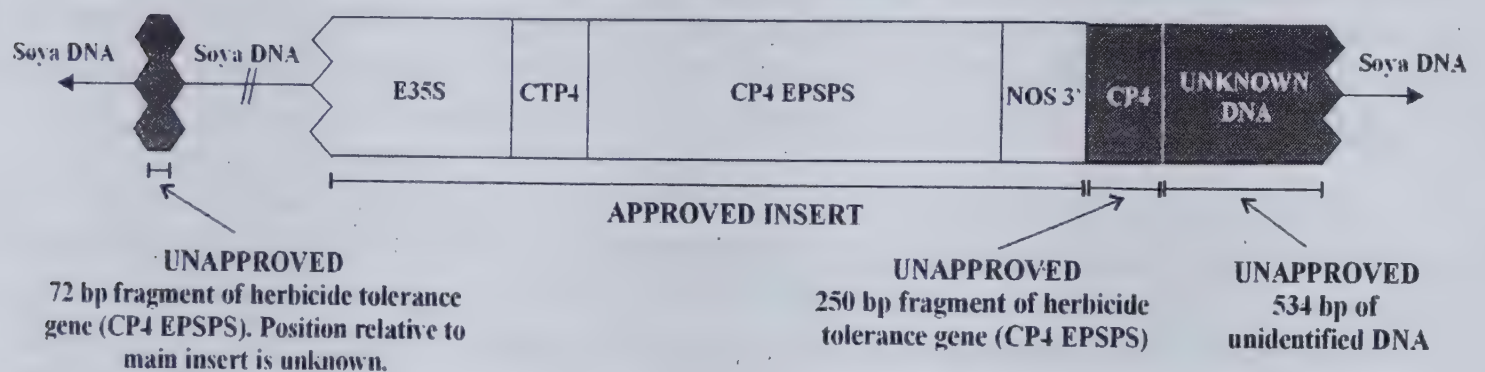


Figure: Schematic of the DNA inserts in Monsanto's Roundup Ready soya. Abbreviations: bp - base pair, used to indicate the length of the DNA fragments¹; E35S - cauliflower mosaic virus promoter; CTP4 - chloroplast transit peptide sequence from petunia; CP4 EPSPS - herbicide tolerance gene from *Agrobacterium sp.*, strain CP4; NOS 3' - nontranslated region of nopaline synthase gene. For footnotes see main text.

Any function that this segment of DNA may have played or does now play is, as yet, completely unknown. If the unidentified DNA is scrambled plant DNA it may have interrupted part of a sequence that codes for a protein. It may have created what is known as an 'open reading frame' by scrambling a 'stop' part of a protein-coding DNA sequence or by introducing a new 'start' codon (i.e. disruption of the signal for when to start or when to stop the gene function). The unknown DNA itself could code for a novel protein - approximately 80-85 % of plant protein coding units (exons) are less than 500 base pairs long⁸, i.e. smaller than the size of the unknown DNA sequence.

Even if the unknown DNA occurs in a non protein-coding region of plant DNA, its presence could interfere with the normal expression of plant genes by affecting the regulatory network, the molecular basis of which is still largely unknown⁹.

It is difficult to speculate upon what the actual outcome in terms of human and animal health, environment or agronomy may be since the very basic information about this

newly discovered region of Monsanto RR soya is not known and it is unknown whether any further unintended changes have occurred anywhere else in the soya genome. However, issues such as differences in phytoestrogen levels¹⁰, increased lignin content, which made RR soya plants brittle in hot temperatures¹¹ and reduced yields from RR soya¹² have previously been raised but never fully explained.

The UK ACNFP was informed of this unidentified DNA in November 2000¹³ by the Belgian scientists¹⁴ and discussed it at the ACNFP January 2001 meeting¹⁵ where it was agreed that there was still some uncertainty regarding the origin of the DNA fragment. The committee has asked Monsanto to provide data demonstrating that this DNA is 'silent' and does not result in the production of a novel protein.

Crucial information, such as the source of the unidentified segment of DNA and possible functions of this segment is still missing. It is still not known whether any new proteins are formed nor whether the genetic insertions have caused interference with normal plant metabolism.

The publication of this sequence of unidentified DNA in a peer-reviewed scientific journal has brought this matter to light. The discovery was not brought to the authorities' attention by Monsanto. This seriously undermines assurances by GE companies that they have either the required knowledge or understanding of the techniques they employ and also raises serious doubts that the regulatory authorities insist on scientific quality and accuracy.

What was approved and what was not approved in the EU

According to Directive 90/220/EEC (article 11.1, Annex II.II.C 1&2), characterisation of the insert is one of the fundamental pieces of information to be provided by notifiers in order to obtain market approval in the EU, and both risk assessment and market approval are done on a case by case basis for each GE organism. Market approval is only granted for that GE organism with the specified genetic arrangement described. A GE organism that contains additional genetic material and/or changed genetic arrangement requires a new assessment and separate approval.

Insert characterisation is a relatively straightforward task, based on methods that has been available for several years. When Monsanto submitted its notification in 1994, with the aim of getting timely EU approval for the first US harvest of GE soya, Monsanto failed to correctly provide even the most basic information about its GE soya.

The genetic characteristics of the inserts contained in the GE soya that is currently imported in the EU are different from the GE soya that was approved in 1996. The GE soya currently being imported and used in food and feed is a new GE organism containing additional sequences and unidentified DNA.

The EU Commission Decision of 3 April 1996 (96/281/EC) states:

... consent shall be given by the competent authorities of the United Kingdom for the placing on the market of the following product notified by Monsanto Europe (Ref.

C/UK/94/M3/1) under Article 13 of Directive 90/220/EEC. The product consists of soya beans derived from a soya bean (*Glycine max* L. cv A5403) line (40-3-2) in which the following sequences have been inserted:

- a single copy of the gene coding for glyphosate tolerance CP4 5 enolpyruvylshikimate-3-phosphate synthase (CP4 EPSPS) from *Agrobacterium* sp. strain CP4, and the chloroplast transit peptide (CTP) coding sequence from *Petunia hybrida* with the promoter P-E35S from cauliflower mosaic virus and the nopaline synthase gene terminator from *Agrobacterium tumefaciens*".

The Roundup Ready soya currently being sold contains additional gene sequences. A second 72 base pair DNA fragment (from CP4 EPSPS) was found and an additional 250 base pair segment of CP4 EPSPS DNA was also identified. This latest discovery shows a further 534 base pair segment of 'unidentified DNA'.

In May 2000 (4 years after appearing on the EU market), additional data was submitted by Monsanto to the UK ACNFP regarding the first two additional gene sequences, including a dossier giving a supposedly detailed molecular characterisation of the insert and flanking regions². However, the newly published DNA sequence³ shows that there are serious errors even in the detailed characterisation submitted by Monsanto.

The RR soya currently being sold in Europe is clearly not genetically the same as that granted consent. The original risk assessment conducted on Monsanto's RR soya did not take into account the newly discovered 'unidentified DNA'. Therefore, the RR soya currently being sold has never actually been granted consent and the risk assessment that was based on this RR soya must now be deemed invalid.

Before Monsanto's new version of Roundup Ready soya can be put on the market, a new application should be submitted by Monsanto under the old Directive 90/220/EEC (or under the new Directive 2001/18/EC) and under the Novel Food regulation, 258/97/EC.

Conclusions

- 1) Monsanto have not provided or even apparently been aware of the correct basic scientific information regarding the genetic make-up their genetically engineered Roundup Ready Soya.
- 2) The GE soya currently on sale in Europe is not that which was approved. The original risk assessment done on the GE soya did not take into account either the additional gene fragments nor the presence and potential function of this newly discovered 'unidentified DNA'. Therefore, the risk assessment done in 1994 to 1996 cannot claim to be a valid safety assessment of the GE soya currently being sold.
- 3) UK and EU Authorities must now take action to uphold their own laws on GE organisms. They should insist that this RR soya is withdrawn from the market and RR soya imports halted until Monsanto have properly applied for and been granted approval for this particular GE organism under all relevant legislation.

References

- ¹ Commission Decision of 3 April 1996 concerning the placing on the market of genetically modified soya beans (*Glycine max* L.) with increased tolerance to the herbicide glyphosate, pursuant to Council Directive 90/220/EEC (96/281/EC). The decision directs the UK government to grant the EU market consent for Monsanto's RR soya.
- ² According to the Database of the OECD RR soya was first approved in the USA for planting and use in 1994, it is approved for planting and use as well in Canada, Argentina and Mexico, for use but not for planting in the EU, Japan and Switzerland. This list may be incomplete.
- ³ Dossier from Monsanto containing molecular analysis of RR soya:
http://www.foodstandards.gov.uk/pdf_files/acnfp/dossier.pdf, available at
<http://www.foodstandards.gov.uk/committees/acnfp/acnfpassessments.htm>
- ⁴ Windels, P., Taverniers, I. Depicker, A. Van Bockstaele, E. & De Loose, M. (2001) Characterisation of the Roundup Ready soybean insert. *European Food Research Technology*, (in press). [Published on line 16th May 2001, DOI 10.1007/s002170100336.]
- ⁵ A base pair (bp) is part of the basic unit of DNA. The number of base pairs is commonly used to indicate the length of a DNA fragment.
- ⁶ The country where the notification for approval of RR soya was submitted, which granted it the EU consent.
- ⁷ <http://www.foodstandards.gov.uk/committees/acnfp/letter.htm>
- ⁸ Lewin, B. (2000) *Genes VII*. Oxford University Press, Oxford, Ch.2, p. 54.
- ⁹ Lewin, B. (2000) *Genes VII*. Oxford University Press, Oxford, Ch. 2, p. 63.
- ¹⁰ Lappé, M.A., Bailey, E.B., Childress, C.C. & Setchell, K.D.R. (1998/1999), Alterations in Clinically Important Phytoestrogens in Genetically Modified, Herbicide-Tolerant Soybeans. *Journal of Medicinal Food*, **1**, 241-245.
- ¹¹ Coghlan, A. (1999) Splitting headache. Monsanto's modified soya beans are cracking up in the heat. *New Scientist*, 20 Nov. 1999, p. 25.
- ¹² Benbrook, C. (2001) Troubled Times amid Commercial Success for Roundup Ready Soybeans. Available at <http://www.biotech-info.net/troubledtimes.html>
- ¹³ Minutes of the 47th meeting of the ACNFP, 16th November 2000:
<http://www.foodstandards.gov.uk/committees/acnfp/minutes/001116.htm> and ACNFP Annual Report 2000. Published 30th April 2001: http://www.foodstandards.gov.uk/pdf_files/acnfp/acnfp00.pdf
- ¹⁴ Papers for the 48th meeting of the ACNFP, 25th January 2001:
http://www.foodstandards.gov.uk/pdf_files/acnfp/acnfp_48_5papers.pdf
- ¹⁵ Minutes of the 48th meeting of the ACNFP, 25th January 2001:
<http://www.foodstandards.gov.uk/committees/acnfp/minutes/010125.htm>

